WHAT IS BIOCHEMISTRY?
Biochemistry is the study of the molecules and chemistry of life. It focuses on the structure, properties and interactions of molecules such as proteins, nucleic acids, sugars, and lipids. If you like to break down problems into their smallest components to find solutions, this field will be a great fit. Biochemistry is essential for understanding and finding cures to disease, improving the production of food and biofuels, and inspiring innovation in biotechnology.

BIOCHEMISTRY AT UW
An education in biochemistry at UW–Madison opens doors to rewarding careers in industry and academia, as well as preparation for medical school and other professional schools.

Our students continually excel at the national level as winners of prestigious awards, such as the Goldwater Scholarship and Rhodes fellowship.

Take advantage of the breadth of opportunities for students on this large teaching and research campus.

CURRENT RESEARCH
Student and faculty researchers in the department are always at the forefront of cutting-edge research in biochemistry.

Be part of our discoveries.

Investigations employ modern tools and technologies such as cryo-EM, X-ray crystallography, NMR spectroscopy, chemical synthesis, molecular modeling, immunochemistry, optical and electron microscopy, and genomic/proteomic analysis.

UNDERGRADUATE STUDY

The Department of Biochemistry at the University of Wisconsin–Madison combines cutting-edge science with historical foundations to tackle the largest issues of today. Since 1883, we have consistently been one of the best biochemistry departments in the country and been at the helm of major scientific breakthroughs.

OPPORTUNITIES

Expand your knowledge of the field of biochemistry through intro classes, advanced courses, and labs. There are approximately 600 undergraduate biochemistry majors, and scholarship opportunities are available.

Get involved in primary research in the many labs run by Biochemistry faculty. Opportunities for funding for research and professional experiences are available.

Gain a global perspective through Biochemistry’s many programs in countries like England, Germany, Uganda, and India.

Meet your peers and explore career options through the American Society for Biochemistry and Molecular Biology (ASBMB) UW–Madison Student Chapter.

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Photo: Hedrich-Blessing Photography
YOUR FUTURE
Pursue a professional degree in medical, dental, pharmacy, or veterinary school and more.

Build on your research experience and continue graduate studies in biochemistry or a related field to shape a career in industry or academia.

Take your skills to a rewarding career in biochemistry, biotechnology, pharmaceutical development, forensics, and more, working in hospitals, university labs, or industry facilities. Possibilities at top organizations and leading companies include positions such as protein purification scientist, lab manager, medical scribe, clinical research coordinator, and food safety and quality chemist, among countless others.

Use your science background to inform patent law, science policy and ethics, sales and marketing for science and technology companies, scientific article publishing, and related fields.

MAJOR REQUIREMENTS
The biochemistry major involves coursework in both the physical and biological sciences taught by faculty awarded for excellence in teaching. Below are some examples of classes that fulfill the requirements with four-year plan examples available online.

Math: Calculus 1 and 2
221 & 222

Chemistry: General Chemistry; Analytical Chemistry; Organic Chemistry with lab; Biophysical Chemistry
(103 & 104) OR 109; 327 OR 329; 343; 344; 345: 565

Physics: General Physics (calculus-based)
(207 & 208)

Biology: Introductory Biology; 6 credits in topics such as Genetics, Microbiology, Biology of Viruses, Plant Biochemistry, etc.
(151; 152; 6 credits of advanced biology)
OR Biocore (4 lectures, 2 labs)

Biochemistry: General Biochemistry; Biochemical Methods
(507 & 508) OR (501 & two additional Biochem credits); 551

The major is offered through CALS or L&S. Students in other schools/colleges may add biochemistry as an additional major.

A HISTORY OF DISCOVERY
The department’s important historic discoveries include:

• Fermentation methods that allowed for large-scale production of antibiotics
• First chemical synthesis of a gene
• Innovations in how vitamins cure diseases like rickets, pellagra and nutritional anemia
• Medications, such as dicoumarol and warfarin, that can be used against heart disease in humans and as pest control in rodents
• Preservation of sperm, bringing about the artificial insemination industry and greatly advancing the field of agriculture
• Discovery of the key features of the incorporation of atmospheric nitrogen into amino acids
• Development of methods for the kinetic analysis of enzyme reactions

How do I declare or find out more information?
For more information visit: biochem.wisc.edu/undergraduate_program.
Schedule with an advisor or ask questions: biochemmicrobio-advisor@wisc.edu.

Photo: Bryce Richter, University of Wisconsin–Madison