



LAKE FOREST
COLLEGE

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Biochemistry and Molecular Biology (BMB) is an interdisciplinary major at the intersection of biology and chemistry. Biochemistry is the application of chemical understanding to biologically important molecules and molecular biology is the molecular understanding of genetic information. Together, these form the interface of the disciplines of biology and chemistry and use the laboratory techniques of each.

SAMPLE PROJECTS IN BMB LABS AND COURSES:

- Molecular Biology: Explore the structure of DNA changes during development and disease
- Biochemistry: Determine the function of fluorescent proteins
- Molecular Machines: Print and explore a 3D model of your favorite protein
- Microbiology: Investigate how hospitals use hundreds of tests to identify a bacterium
- Physical Chemistry: Study the kinetics of antioxidant degradation
- Mechanisms of Brain Dysfunction: Investigate protein misfolding as the primary cause for neurological abnormalities

RESEARCH:

Students regularly conduct hands-on research with professors and are trained to use professional-grade equipment. A sample of on-campus research:

- How molecular changes in bacteria affect tuberculosis pathogenesis
- Combining chemistry with microbial metabolism to remove pharmaceuticals from water supplies
- Exploring the unique neurophysiology of sensory systems during locomotion and behavior in fishes

EQUIPMENT AND INSTRUMENTATION:

Equipment for classroom and laboratory research for the BMB major is made possible by a nearly \$500,000 grant from the Sherman Fairchild Foundation, including:

- An imager that allows the visualization of DNA and protein.
- A plate reader that analyzes the function of nearly 100 tiny protein samples.
- Polymerase Chain Reaction (PCR) machines that amplify a previously invisible DNA sample.
- A homogenizer that can release the DNA from all sorts of tissues— even bones.

Visit lakeforest.edu/BMB for a list of additional equipment and instrumentation.



AYESHA QURAISHI '19

Majors: Biochemistry and Molecular Biology; and International Relations
Campus Activities: Future Health Professionals, Student Government

Read about Ayesha's path at lakeforest.edu/quraishi



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INTERNSHIPS: • AbbVie • Argonne National Laboratory • Rosalind Franklin University of Medicine and Science • Oak Ridge National Laboratory • Northwestern Lake Forest Hospital • Illinois Bone & Joint Institute • Lake Forest Acute Care • Horizon Pharma • ScribeAmerica • Cancer Treatment Centers of America

CHICAGO offers unmatched opportunities for student research, internships with leading-edge organizations, and field trips to world-renowned science and natural history museums and labs. Students and faculty can collaborate on data collection and research with area institutions, including the University of Chicago, Northwestern University, Art Institute of Chicago, and Rosalind Franklin University of Medicine and Science.

The BMB major will prepare students for careers in industry or research, or for further study in graduate, health professions, or medical school.

Our biochemistry and molecular biology majors can pursue many career paths:

DENTIST

NURSE

OPTOMETRIST

PHYSICAL THERAPIST

PHYSICIAN

PHYSICIAN ASSISTANT

VETERINARIAN

LAW AND POLICY

RESEARCH

INDUSTRY

NONPROFIT MANAGEMENT

PHARMACEUTICAL SALES

CONSERVATION AND ENVIRONMENT

BIOTECHNOLOGY



Learn about our accomplished faculty, requirements for the major, and more at lakeforest.edu/academics/bmb