



# BIOCHEMISTRY AND MOLECULAR BIOLOGY

are you ready to blaze a **TRAIL**?

## join the revolution

The secrets of life are hidden within chemical codes. The goal of biochemists/molecular biologists is to decipher these codes. We seek to understand the molecular forces that give us life and that conspire to produce disease. An ever-growing arsenal of molecular techniques allows dissection of the most intimate secrets of the cell. Knowledge of the biochemical mechanisms of life can be used to improve the quality of life and health care for all peoples of the world by producing better drugs, increasing agricultural yield and providing a cleaner environment. Do you want to join this biochemical revolution? Consider a major in biochemistry in the Department of Biochemistry and Molecular Biology.

## what is biochemistry?

Biochemistry, the central scientific discipline linking the chemical, physical and biological sciences, exerts a profound influence on the progress of medicine and agriculture. By applying concepts and methods of chemistry and physics to the fundamental problems of biology, biochemists have made great progress in their effort to understand the chemistry of living organisms. Major discoveries concerning the biochemistry of genetic material provide the tools of molecular biology that are essential to contemporary life sciences research. Since a biochemist's tools are the physical sciences, he or she must receive sound education in mathematics, physics and chemistry. The Department of Biochemistry and Molecular Biology provides a curriculum with a broad background in chemistry and biological science and permits flexibility in meeting particular interests of the student.

## curriculum

The Biochemistry and Molecular Biology curriculum is built on a strong physical and biological science foundation with program flexibility. You will learn laboratory techniques such as recombinant DNA

technology, biotechnology, and protein and genetic engineering. The Biochemistry curriculum is excellent preparation for students interested in professional health care fields, including medicine and nutrition.

## undergraduate research

The Department of Biochemistry and Molecular Biology encourages students to become involved with a research laboratory as early as they wish, even the freshman year. Involvement in laboratories provides both research experience and personal attention to the student. Advisers in the department will help you apply for summer research internships nationwide.

## career opportunities

Challenging positions for well-trained Biochemists and Molecular Biologists are available in colleges and universities, state and federal laboratories, research institutes, medical centers and in an increasing number of industrial organizations, particularly the pharmaceutical and food industries. Biochemists are involved with research on the chemistry of processes occurring in plants, animals and various microorganisms, and with the discovery and development of antibiotics, vitamins, hormones, enzymes, insecticides and molecular genetic techniques.

## for more information

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# roads TRAVELED



Biochemistry and Molecular Biology Alumna Profile:

## Name:

Regina Rowe  
St. Louis, Mo.

## Current Occupation:

Pre-Doctoral Graduate Student

## Regina's Story:

Every scientist knows that adapting means changing to fit a situation. And every Biochemistry and Molecular Biology student at OSU knows that their major can do just that: adapt. Because the career possibilities in Biochemistry and Molecular Biology are so vast, each student has the opportunity to adapt their degree plan to fit their career goals. Regina Rowe knows this first hand.

"The Biochemistry and Molecular Biology major offers a lot of flexibility when choosing a career path at the end of the undergraduate degree," Regina said. "I was very interested in a career in biomedical research which made this major perfect. However, many of my classmates pursued other career paths including medical, dental, pharmaceutical and veterinary medicine programs"

As a Pre-Doctoral Graduate Student in Molecular Microbiology & Microbial Pathogenesis at Washington University School of Medicine, Regina feels the education she received at OSU prepared her well for the field she is in today.

"The Biochemistry and Molecular Biology major at Oklahoma State University is one of the best majors to prepare a person for a career in basic science research," said Regina. "Many of the upper division courses include hypothesis-based learning that prepares you for everyday life as a graduate student and scientist."

For students interested in a career path like hers, Regina recommends they spend as much time as they can in the lab.

"The best preparation for graduate school and basic science research is to get experience," said Regina. "There are many opportunities at Oklahoma State that allow a student to conduct their own research."

So if you want a major that can adapt, Biochemistry and Molecular Biology might just fit your needs!

"In science you can be sure you are always at the forefront of new information and breakthrough technology."

- Regina Rowe  
CASNR Graduate

## which PATH are you taking?

Careers for Biochemistry and Molecular Biology Graduates:

- Biomedical Research
- Biotechnology
- Business
- Chemical Industry
- Clinical Chemistry
- Environmental Research
- Food Industry
- Forensics
- Medicine
- Nutrition
- Pharmaceutical Industry
- Research Institutes
- Science Education
- Veterinary Medicine

Oklahoma State University  
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This publication is printed and issued by Oklahoma State University as authorized by the Dean of the Division of Agricultural Sciences and Natural Resources and has been printed at a cost of \$942.18 for 2500 copies. 0805 # RKB.

## MILE MARKERS

Enrollment:

- 240 Students

Study Options:

- General
- Pre-Veterinary Medicine
- Pre-Medical Studies

Excellent Preparation For:

- Medical School
- Dental School
- Optometry School
- Pharmacy School
- Veterinary Medical School

Department Research

- Faculty are involved in "cutting edge" research
- Undergraduate students are an integral part of the department's research programs

Student Organizations:

- Biochemistry Club

For More Information:

- [www.casnr.com](http://www.casnr.com)