



CONCENTRATION
Biomolecular Science

www.stolaf.edu/depts/bmols

The Biomolecular Science Concentration is designed for students who seek to understand the core sciences of biology and chemistry but want to pursue an integrated selection of upper-level courses in areas such as molecular genetics, biochemistry, molecular biology, bioinformatics, biophysics and more. The flexibility of the program allows these areas to expand and change over time.

“Biomolecular science incorporates such a wide range of scientific fields,” says Assistant Professor of Chemistry Beth Abdella, who directs the biomolecular science program. “Expanding interest in the intersections of traditional disciplines such as psychology and physics has led to the development and growth of new scientific areas. Biochemistry and molecular biology have been recognized as interdisciplinary sciences for many years. Newer on the scene are fields such as bioinformatics, molecular evolution and biophysical chemistry.”

An experiential learning component takes biomolecular science out of the traditional classroom and enables students to explore its applications in fields such as agriculture, genetics, forensics and medicine. It also exposes students to cutting-edge research being conducted in all the scientific disciplines, including molecular genetics, biophysical chemistry, biochemistry and population biology.

Expanding Awareness

“I believe in the absolute importance of scientific literacy. As a St. Olaf student, I have all sorts of opportunities to acquire this literacy,” says junior Kezia Manlove, who has designed her major with elements from biology, chemistry and statistics and has a biomolecular science concentration. Manlove is interested in global

water issues, which are, she says, “a huge part of public health. I feel that in order for me to communicate effectively with the scientists collecting data and to contribute to improving water sanitation, I need to have a pretty solid comprehension of the chemistry and biology involved.” ■

“For one student, this concentration can be in biochemistry but for another, it can be a concentration in bioinformatics.”

HOT TOPIC

Career prospects in bioinformatics have never been better. Demand in the field is being fueled in part by the completion of the Human Genome Project, which has resulted in bioinformatics becoming the fastest growing area of the life sciences subjects.

The St. Olaf Bioinformatics Interim provides an introduction to the field of bioinformatics. Topics include sequences of DNA and RNA and the “central dogma”; comparing and predicting sequences and predicting species; computational techniques such as substitution matrices, sequence databases and dynamic programming; and bioinformatics tools such as FASTA and BLAST.

“Biomolecular Science lets students majoring in biology, chemistry, physics, psychology, mathematics, statistics and computer science tailor their own program. It allows students to fine-tune their career choices.”

— Beth Abdella '82

Assistant Professor of Chemistry
Director of Biomolecular Science

Cool Class

Explorations in Biomolecular Science

This course broadly studies biomolecular science through reading and discussion of literature across the field. Biomolecular faculty take turns leading discussions of a paper in a field related to their own interest, from bioanalytical chemistry, conservation and bioinformatics to cell physiology and population genetics. By exploring the breadth of biomolecular science, students can identify the areas of their principal interest and plan their future course selections.

