

BIOCHEMISTRY

Biochemists study the structure and function of molecules such as proteins, nucleic acids, and lipids that are found in living organisms. They learn how diseases such as cancer and diabetes develop at the molecular level, and how molecules and microbes can be engineered to create new drugs, improve crops, make biocompatible products, and clean up the environment.

Your future in the biological sciences

There couldn't be a better time to major in the biological sciences. Advances in genomics and related applications in biotechnology are dramatically increasing demand for biological scientists in the work force. According to the 2002 edition of *Jobs Rated Almanac*, biological scientists top a list of 250 occupations ranked by earnings potential and job prospects. The report is based on statistics from the U.S. Department of Labor, the census, professional organizations, and surveys.

Many students who earn bachelors degrees in the biological sciences go on to graduate school to pursue research and academic careers, or to a health science professional school. An increasing number, however, are employed by the biotechnology industry.

The CBS Career Center provides students with information about career planning.

Curriculum

Biochemistry students take physical biochemistry, two advanced biochemistry courses, a biochemistry laboratory, biochemistry research topics (faculty lectures on their research) genetics, cell biology, and six upper division elective credits, which can include directed research.

All CBS students are required to take a year each of calculus, general chemistry, and physics along with coursework in general biology and organic chemistry. Students also choose from a variety of courses in organismal biology, cell biology, ecology, and evolution.

The curriculum is designed to integrate a strong basic research program with traditional and innovative classroom teaching and mentoring.



Meet James Ross, biochemistry major

As a student at North St. Paul High School, James Ross was interested in biology and chemistry. So biochemistry was a natural choice for him. He chose the College of Biological Sciences because he liked the college's small-school atmosphere and the availability of scholarships.

James works in the laboratory of Department Head David Bernlohr, who conducts research on lipid metabolism. James is doing a research project using gene shuffling to create new proteins to deliver nonsoluble drugs. He plans to go on to medical school or an M.D./Ph.D. program.

"The faculty and students here are great. And the U is on the forefront of research. There's so much to see, experience, and explore."

When he's not in a lab or classroom, James enjoys intramural hockey, softball, and soccer. He volunteers at St. John's Hospital and for youth athletics programs.

Research opportunities

As part of a large public research university, the College of Biological Sciences offers a wealth of opportunities for hands-on research experience. This gives the college a distinct advantage over small private colleges. There are more than 1,200 life sciences faculty on the Minneapolis and St. Paul campuses, and as many kinds



of research to experience. Most CBS students complete a directed research project guided by a faculty member. Projects can earn academic credits that apply toward the major. Students also may volunteer to assist with faculty research projects or gain experience by working as paid lab technicians.

Administration

The major in biochemistry is administered through the Department of Biochemistry, Molecular Biology, and Biophysics. For more information about the department, visit <http://biosci.cbs.umn.edu/BMBB/>.

The CBS advantage

Here are some of the advantages offered by the College of Biological Sciences:

- The University of Minnesota is ranked among the top three public research universities in the U.S.
- Molecular and Cellular Biology is one of the University's five priority areas.
- Many classrooms and instructional laboratories for undergraduates are located in the new \$80 million Molecular and Cellular Biology Building.
- CBS is a gateway to the Academic Health Center, which trains health professionals in medicine, pharmacy, dentistry, veterinary medicine, public health, and nursing.
- CBS operates two outstanding sites for field biology: Cedar Creek Natural History Area and Lake Itasca Forestry and Biological Station.
- Although CBS offers the advantages of access to a large public university, with 1,300 students it retains a small-college atmosphere.
- CBS offers a number of special programs to help students make a successful transition to college life and to meet other students.

For more information

If you are interested in visiting CBS, call the University of Minnesota Visit Office at 612-625-0000 or 1-800-752-1000

For more information about admissions, including an application, contact the Office of Admissions at <http://admissions.tc.umn.edu> or 612-625-2008; toll-free 800-752-1000; TTY 612-625-9051.

Twin Cities campus information is available on the Web at www.umn.edu/tc. The Undergraduate Catalog is available at www.umn.edu/commpub. To request a copy of the Undergraduate Catalog, call University Bookstores, 800-442-8636.

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