



Rhodes College
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BIOCHEMISTRY/ MOLECULAR BIOLOGY

Biochemistry and Molecular Biology (BMB) is an interdisciplinary major, which studies life at the molecular level. Under the guidance of faculty members drawn from the Departments of Biology, Chemistry and Mathematics & Computer Science, BMB majors study the structures and functions of cells and biological molecules by using contemporary methods of biochemical analysis, recombinant DNA technology, molecular genetics, fungal genomics and bioinformatics. By drawing upon the resources and perspectives of multiple disciplines, this major reflects the collaborative nature of current scientific research in this exciting area. In BMB, biologists and chemists contribute their respective understandings of cells and molecules in order to examine the workings of life at its finest levels. Computer scientists and mathematicians contribute to this effort by designing the computational tools of bioinformatics, which enable researchers to understand the structures of the thousands of different genes and proteins that are present in living systems.

Curriculum

Major: Bachelor of Science,
Biochemistry and Molecular Biology

The curriculum of the BMB program is designed to give students a firm grounding in the chemical and biological principles that apply to the study of life at its fundamental level. Introductory course work in chemistry and biology in the first year provides the theoretical understanding and practical laboratory background necessary for more advanced study in areas that include cell biology, organic chemistry, biochemistry and molecular biology. Room is also planned into each student's curriculum for elective courses in the discipline, with the opportunity to choose from such courses as genetics, physical chemistry, computer science, developmental biology, pharmacology, bioinformatics and independent research. Laboratory study is a part of every course and provides students with the investigational tools necessary not just to understand how knowledge in science is obtained, but also to engage in original research.

Research

All courses employ investigational approaches as part of the course or laboratory, building on skills from the introductory level through the Senior Seminar. Beyond that, students are strongly encouraged to apply what they have learned by becoming involved in undergraduate research. Faculty members involved in the program have active research programs in cell

and molecular biology, often supported by research grants from NIH and NSF. Further opportunities for undergraduate research are provided through formal programs and informal arrangements with St. Jude Children's Research Hospital and the University of Tennessee Health Science Center. Students working with BMB faculty have won numerous awards for their research presentations and gained entry into prestigious graduate programs.

Pre-Health Professions

For students interested in attending medical school or other graduate schools in a health profession, Rhodes provides a Health Professions Advisory Committee to counsel and assist students in the application and selection process. Rhodes students are admitted to health-professions schools at twice the national average rate.

Equipment and Facilities

Because a Rhodes education focuses upon undergraduates, BMB majors have full access to the equipment and facilities. Classrooms and laboratory space of the Chemistry Department are located in Kennedy Hall, a 22,000-square-foot facility. A renovation of Kennedy Hall in the summer of 1999 included all teaching laboratories. The Frazier Jelke Science Center is home to the Department of Biology. This 37,000-square-foot, underground facility includes nine teaching laboratories, a mammal room, aquarium room, cell culture laboratory, modern imaging center



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and faculty offices and research laboratory space. Both buildings house recently renovated, state-of-the-art classrooms enhanced with video and computer capabilities.

Faculty

The faculty members on the BMB Program Committee are from the Departments of Biology, Chemistry and Mathematics and Computer Science. Other Biology and Chemistry faculty teach courses that are part of the BMB major. The professors have a wide range of experience and cover many areas of specialization. Lectures and labs are taught by faculty. Rhodes does not utilize graduate teaching assistants.

Furthermore, students have the opportunity to work directly with faculty on original research projects.

Terry W. Hill, Professor of Biology; Ph.D., University of Florida. Specialties: *Cell biology, microbiology*.

Loretta Jackson-Hayes, Assistant Professor of Chemistry; Ph.D., University of Tennessee, Memphis. Specialty: *Pharmacology*.

Mary E. Miller, Associate Professor of Biology; Ph.D. University of Virginia. Specialty: *Genetic, cancer biology*.

Darlene M. Loprete, Professor of Chemistry; Ph.D., University of Rhode Island. Specialty: *Biochemistry*.

Outside the Classroom

Many BMB students conduct independent research. There are research opportunities with Rhodes faculty as well as with faculty at the University of Tennessee Health Science Center and at St. Jude Children's Research Hospital. In addition, students may participate in internship opportunities for course credit at one of the many general and specialty hospitals and clinics in Memphis, at biotechnology companies through the Memphis BioWorks Development Council, at the St. Jude Hartwell Center for bioinformatics or at the University of Tennessee Health Science Center's Molecular Resource Center.

Graduates

The BMB program's first graduating class was in May 2006. The following is based on the success of Biology and Chemistry majors over the last five to 10 years.

54-68% pursue graduate degrees

Biology and Chemistry majors have experienced a very high acceptance rate into graduate school programs and medical schools. Students have gone to a wide variety of institutions including Johns Hopkins, Vanderbilt, Stanford, Harvard, Washington University, Emory, University of Tennessee, Wisconsin, Cornell, Florida State University, Cal Tech, University of Washington, University of Alabama Birmingham and the University of North Carolina.

28-36% take full time jobs

Recent graduates have taken research and technologist positions at such institutions as St. Jude Children's Research Hospital, UT-Memphis and the Campbell Clinic.

4-10% follow interests outside of their field of study

For more information

Please contact Dr. Darlene Loprete, Chair of the Biochemistry and Molecular Biology Program at (901) 843-3905 or Admissions at 1-800-844-5969.

You can also explore the program's Web page at rhodes.edu/academics/3369.asp.