Faculty and students in the School of Molecular and Cellular Biology (MCB) investigate fundamental questions about how organisms work and how they evolve. Research spans from the molecular to the systems levels, and the discoveries that are made enable scientists to address important questions relevant to life, health, and disease. Our world-renowned researchers and educators share a culture rich in intellectual collaboration, and their discoveries contribute to local, state, national, and international objectives.

The MCB undergraduate curriculum is designed to impart both the core principles of modern biology and the conceptual and analytical skills necessary for a successful scientific career. Focused educational and practical training in molecular and cellular biology prepares students for professional and graduate school, careers in teaching, work in the biotechnological and pharmaceutical industries, and many other exciting career paths.

The Ph.D. degree programs, offered through the departments, are among the finest in the nation, and they attract the very highest-achieving applicants. Our large community of Ph.D. students brings energy, productivity, and diversity to our research enterprise. Current students are distributed among dozens of laboratories that tackle cutting-edge problems across a broad spectrum of biological sciences. Multi-investigator and cross-disciplinary teams address the complex biological issues that confront today’s world, and MCB scientists enhance their collaborative efforts through close interactions with national laboratories and membership in specialized campus institutes and centers of excellence.
Highlights

- The School of Molecular and Cellular Biology is the largest research and instructional unit in the College of Liberal Arts & Sciences (LAS), with the greatest enrollment.
- The School of MCB faculty comprises 75 research, assistant, associate, and full professors.
- Faculty members advance education and fundamental research in the molecular, cellular, and integrative aspects of how organisms work.
- Our faculty legacy includes recipients of the Crafoord Prize, members of the National Academy of Sciences and the American Academy of Arts and Sciences, a MacArthur Fellow, Howard Hughes Medical Investigators, and other distinguished honorees.
- The MCB undergraduate program consistently attracts exceptionally qualified undergraduates: Our students have some of the highest entrance scores in the College.
- To effectively accommodate over 12,000 yearly class enrollments and 1,800 majors, the MCB undergraduate instructional program has developed innovative and highly effective methods of instructional delivery.
About MCB

Departments, Centers, & Programs
- Department of Biochemistry
- Department of Cell & Developmental Biology
- Department of Microbiology
- Center for Biophysics and Computational Biology
- Medical Scholars Program
- Neuroscience Program

Faculty (2014-2015)
- Professors 39
- Associate Professors 18
- Assistant Professors 14

Students (2013-2014)
- Undergraduate Students (total): 1,809
  - Undergraduate Resident Status
    - 89% Illinois
    - 4% Out-of-state
    - 6% International
- Graduate Students
  - 234 M.S., Ph.D., or combined Ph.D./M.D.
    - 63 in Department of Biochemistry
    - 43 in Department of Cell & Developmental Biology
    - 52 in Department of Microbiology
    - 19 in Department of Molecular and Integrative Physiology
    - 57 who have not yet selected a department
- Total Enrollment in MCB Classes: 12,758

Degrees Awarded (2013-2014)
- Bachelors 401
- Masters 9
- Doctorate 21

Funded Research—Total Research Support (2014)
- Training Grants $761,869
- NIH $18,225,980
- NSF $1,160,236
- DARPA $1,269,937
- DOE $366,000
- NASA $82,160
- Private $652,107
- TOTAL $22,538,289
The research portfolio for the School of Molecular and Cellular Biology spans the full range of modern biological science—from the atomic structures of proteins and the molecular mechanisms of cell signaling to the processes of tissue development and the interactions of complex networks. Much of this work has direct medical relevance, including ongoing investigations into neurological disorders such as Alzheimer’s disease, epilepsy, sleep disorders, and intellectual disabilities; the study of infectious diseases, including salmonella, anthrax, and herpes infections; research focused upon tumorigenesis, including the involvement of estrogen in breast cancer; and studies of cardiovascular function.

In addition to the overall advancement of biological science, the MCB research mission strongly supports our instructional efforts and contributes in important ways to the development of useful products for industry and for human health.

Tissue section of a developing Schistosoma mansoni larva (center) living inside the muscular tentacle of its snail host (periphery). The colors indicate different depths within the tissue. Image credit: Newmark Lab, winner of the 2013 FASEB BioArt Competition.
University and MCB Research Facilities

**Roy J. Carver Biotechnology Center**
Provides advanced facilities for molecular biology research, including DNA and protein sequencing and oligonucleotide and peptide synthesis.

**William Keck Center for Comparative and Functional Genomics**
Conducts research on the comparative genetic organization, evolution, and function of plant, animal, and microbial genomes, and provides sequencing and oligonucleotide synthesis, DNA microarray facilities, and bioinformatics specialists.

**Protein Sciences Facility**
Aids researchers in protein sequence analysis, peptide synthesis, and 2D gel electrophoresis.

**Immunological Resources Center**
Includes the creation, purification, and immunochemical labeling of antibodies.

**Flow Cytometry Facility**
Maintains several satellite flow cytometry machines throughout campus.

**Metabolomics Center**
Facilitates identification and quantification of small molecules (metabolites) from various resources including plants, animals, and human beings.

**Imaging Facility**
Features state-of-the-art instrumentation for optical imaging including live cells and sub-diffraction limit resolution.
Candidates interested in one or more of the departmental programs in MCB (Biochemistry, Cell and Developmental Biology, Microbiology, or Molecular and Integrative Physiology) should apply directly to the School of MCB. Admission to any of the departmental Ph.D. programs requires a bachelor’s degree in biological or physical sciences. Students are admitted only in the fall semester.

MCB is also affiliated with three robust interdisciplinary graduate-degree programs: the Center for Biophysics and Computational Biology, the Neuroscience Program, and the Medical Scholars Program (MSP). The MSP leads to an M.D./Ph.D. through the most degree-diverse program in the nation. All three programs have significant MCB faculty participation. Prospective students should apply directly to these programs, some of which offer training grant funding.

Additional information regarding application to an MCB graduate degree program can be obtained at our web site (mcb.illinois.edu)—select “Graduate Studies” then “Prospective Grad Students.” Or contact us at the following address:

MCB Graduate Studies
B103 Chemical and Life Sciences Laboratory (CLSL),
MC-110
601 South Goodwin Avenue
Urbana, IL 61801

phone: (217) 333-1737
fax: (217) 244-6697
e-mail: gradinfo@mcb.illinois.edu
The MCB undergraduate curriculum is focused on the fundamental structures, functions, and mechanisms of living organisms. Students who major in MCB or our Specialized Curriculum in Biochemistry receive a solid foundation in biochemistry, cell and developmental biology, microbiology, molecular genetics, physiology, and structural biology. This program prepares students for a wide range of biomedical careers and for medical, dental and graduate schools.

If you are considering MCB as a major, the MCB Advising Program offers tours of laboratories and classrooms, and opportunities to meet one-on-one with MCB faculty and instructors. We encourage you to contact the MCB Advising Program at (217) 333-6774 or advising@mcb.illinois.edu to schedule a tour and meetings.

Undergraduate Admissions

Incoming freshmen have a unique opportunity at Illinois. Students can explore biology for a full year before making a choice about what kind of biologist you want to be. Those who choose Molecular and Cellular Biology as a major can declare just before sophomore year.

Students should apply for admission to the College of LAS with a major in Biology via the undergraduate admissions web site at http://admissions.illinois.edu/apply/index.html. For specific information about the MCB degree requirements visit http://provost.illinois.edu/ProgramsOfStudy/2013/fall/programs/undergrad/las/molecular_cell_bio.html or contact:

MCB Undergraduate Instructional Program
School of Molecular and Cellular Biology
393 Morrill Hall, MC-119
505 South Goodwin Avenue
Urbana, IL 61801-3709
Phone: (217) 244-6239
Email: undergrad@mcb.illinois.edu
Enrichment Opportunities

The MCB Honors Concentration
Designed for exceptional MCB majors who wish to explore a fuller complement of experiences in biology during their undergraduate training.

Undergraduate Research
Offers the excitement of cutting-edge science and the opportunity to hone skills in analytical thinking and scientific communication. Many students who conduct undergraduate research also write senior theses that allow them to graduate with distinction.

The MCB Merit Program
Designed for academically high-achieving students who are either from small schools or from groups that are traditionally underrepresented in the sciences.

The MCB Access and Achievement Program
Academic service program for students in the College of LAS Educational Opportunities Program or the President’s Award Program. Designed to provide a supportive learning environment, promote self-advocacy, and promote students’ academic success. This program connects students with University resources that will complement their academic talents and will help shape their academic paths and ambitions. Our goal is to prepare students for academic success, graduation, and a productive life.

Study Abroad
Pre-Med and Pre-Dentistry students interested in a truly unique experience may study biomedical sciences at the University of Newcastle in England. This program offers students the opportunity to experience coursework and service tightly aligned with their academic discipline and their vocational goals.

The MCB Learning Center
Assistance with course material and writing is available at the Learning Center. In addition, the Learning Center houses a thirty-station computer lab.

Discovery Courses
Established in 1994, the Discovery Program helps Illinois students enhance their education through greater interaction with faculty in small classes. These courses also enable faculty to share their research in a particular area with students. It is intended for first-time freshmen only.
Administration

The School of MCB comprises four departments and is affiliated with three additional graduate degree-granting units.

School of MCB

- Director
  Stephen G. Sligar

- Executive Associate Director of Operations and Strategic Planning
  Daniel G. Ozier

- Associate Director for Administration and Business Affairs
  Ann C. Zielinski

- Associate Director for Graduate Affairs
  James A. Imlay

- Associate Director of Undergraduate Education
  Brenda A. Wilson

Departments

- Department of Biochemistry
  Susan A. Martinis, Head

- Department of Cell and Developmental Biology
  Jie Chen, Head

- Department of Microbiology
  John E. Cronan, Head

- Department of Molecular and Integrative Physiology
  Milan K. Bagchi, Head

Centers and Programs

- Center for Biophysics and Computational Biology
  Taekjip Ha, Director

- Medical Scholars Program
  James M. Slauch, Director

- Neuroscience Program
  Susan Schantz, Director
Contact Information

School of Molecular and Cellular Biology
- Administrative Offices
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- Undergraduate Instruction
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  fax: (217) 244-8202
  email: undergrad@mcb.illinois.edu
- Graduate Studies
  phone: (217) 333-1737
  fax: (217) 244-6697
  email: gradinfo@mcb.illinois.edu

Department of Biochemistry
phone: (217) 333-2013
fax: (217) 244-5858
web: http://mcb.illinois.edu/departments/biochemistry/

Department of Cell and Developmental Biology
phone: (217) 244-8116
fax: (217) 244-1648
web: http://mcb.illinois.edu/departments/cdb/

Department of Microbiology
phone: (217) 333-1736
fax: (217) 244-6697
web: http://mcb.illinois.edu/departments/microbiology/

Department of Molecular and Integrative Physiology
phone: (217) 333-1734
fax: (217) 333-1133
web: http://mcb.illinois.edu/departments/mip/

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