Mathematical, Computational, and Systems Biology, M.S.

The graduate program in Mathematical, Computational, and Systems Biology (MCSB) is designed to meet the interdisciplinary training challenges of modern biology and function in concert with existing departmental programs (Departmental option) or as an individually tailored program (stand-alone option) leading to a M.S. degree.

The degree program provides students with both opportunity for rigorous training toward research careers in areas related to systems biology and flexibility through individualized faculty counseling on curricular needs, and access to a diverse group of affiliated faculty and research projects from member departments. Current member departments include Biomedical Engineering, Biological Chemistry, Computer Science, Developmental and Cell Biology, Ecology and Evolutionary Biology, Mathematics, Microbiology and Molecular Genetics, Molecular Biology and Biochemistry, Chemistry, and Physics.

If you have any questions or would like to learn more about the MCSB Program, please email mcsb@uci.edu (ccbs@uci.edu)

Students interested in the MCSB Program apply to the Office of Graduate Studies (OGS). Applicants must specify that they wish to pursue the M.S. or Ph.D. Upon completion of the M.S., students who may wish to pursue a Ph.D. may request to be evaluated together with the pool of prospective Ph.D. candidates for admission to the Ph.D. program.

Applicants are expected to hold a Bachelor's degree in one of the Science, Technology, Engineering, and Mathematics (STEM) fields. Applicants are evaluated on the basis of their prior academic record and their potential for creative research and teaching, as demonstrated in submitted application materials (official university transcripts, letters of recommendation, GRE scores, and statement of purpose).

Required Core Courses

DEV BIO 203A	Graduate Tutorial in Developmental and Cell Biology
PHYSICS 230A	Biophysics of Molecules and Molecular Machines
DEV BIO 232	Systems Cell and Developmental Biology
DEV BIO 203C	Graduate Tutorial in Developmental and Cell Biology
MATH 227A	Mathematical and Computational Biology [1]
or BME 233	Dynamic Systems in Biology and Medicine
MATH 227B	Mathematical and Computational Biology
COMPSCI 284C	Computational Systems Biology
or MATH 227C	Mathematical and Computational Biology

[1]   BME 233 may be taken only if MATH 227A has been completed.

Students must complete the required core courses with at least a B+ average (3.3 GPA).

Required Labs

Students are expected to complete a minimum of two rotations during the first year. In some cases, students may arrive during the summer months (July and August) to start a rotation early, or finish a rotation prior to the start of the classes. In general, students are expected to complete rotations by the end of the spring quarter of their first academic year.

Students must perform one laboratory rotation in an experimental (wet) lab, and one in a computational (dry) lab.

Master of Science Program

Students pursuing the M.S. may choose either Plan I (Research Thesis Option) or Plan II (Literature Thesis Option). Students following Plan I must complete the seven required core courses (listed above), plus two electives. Students in Plan II must complete the seven required core courses, plus five elective courses selected from Breadth Categories I, II, and II. Students in Plan I and Plan II must attend first-year bootcamp.

In both plans, students must be supervised by a training faculty participating in the MCSB Ph.D. program and the student's choice of Plan I or Plan II must be approved by the MCSB Executive Committee in consultation with the Program Director and their faculty supervisor. The normative time to degree is two years.