Twin Cities Campus

Stem Cell Biology Minor

Stem Cell Institute
Medical School

Link to a list of faculty for this program.

Contact Information:
Stem Cell Institute, 2001 6th Street SE, Mail Code 2873, Minneapolis, MN 55455-3007 (612-625-0602; fax: 612-624-2436)
Email: scbgrad@umn.edu

- Program Type: Graduate minor related to major
- Requirements for this program are current for Fall 2022
- Length of program in credits (Doctorate): 12
- This program does not require summer semesters for timely completion.

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

The stem cell biology minor is available to PhD students in relevant programs such as MCDB&G, MiCaB, pharmacology, microbiology, bio-engineering, or a medical or veterinary medicine school program, and who have an interest in stem cell biology. It offers training in stem cell biology, which is a rapidly growing interdisciplinary field that rests on foundations provided by molecular, cellular, and developmental biology. Students will take lecture and seminar courses, interact with members of the Stem Cell Institute through participation in research seminar and journal clubs, and conduct stem cell research in the laboratory of a stem cell biology graduate program faculty member.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

Special Application Requirements:
Applicants must be admitted to a Ph.D. program and obtain approval from the Stem Cell Biology director of graduate studies.

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

In addition to course requirements, the student's research project must be done in the lab of a Stem Cell Biology faculty member; therefore, students must obtain approval from the Stem Cell Biology director of graduate studies prior to declaring the minor.

The minimum GPA for minor field coursework is 3.00.

Program Sub-plans

Students are required to complete one of the following sub-plans.
Students may not complete the program with more than one sub-plan.

Doctoral

Required Courses (5 credits)
Take the following required courses on the A-F grade basis.
SCB 5054 - Stem Cell Institute Research Seminar and Journal Club (2.0 cr)
SCB 8181 - Stem Cell Biology (3.0 cr)
Electives (7 credits)
Select at least seven elective credits in consultation with the Stem Cell Biology director of graduate studies to complete the 12-credit minimum. Elective courses should be taken on the A-F grade basis. Courses required to meet the student's major field requirement

cannot be applied to the minor.
Take 7 or more credit(s) from the following:

- BIOC 8007 - Molecular Biology of the Genome (2.0 cr)
- BIOC 8008 - Molecular Biology of the Transcriptome (2.0 cr)
- BIOC 8401 - Ethics, Public Policy, and Careers in Molecular and Cellular Biology (1.0 cr)
- BMEN 5041 - Tissue Engineering (3.0 cr)
- BMEN 5351 - Cell Engineering (3.0 cr)
- BMEN 5701 - Cancer Bioengineering (3.0 cr)
- BTHX 5000 - Topics in Bioethics (1.0 - 4.0 cr)
- BTHX 5100 - Introduction to Clinical Ethics (3.0 cr)
- BTHX 5110 - Ethical Issues in Pediatrics (2.0 cr)
- BTHX 5210 - Ethics of Human Subjects Research (3.0 cr)
- BTHX 5325 - Biomedical Ethics (3.0 cr)
- BTHX 5400 - Intro Ethics in Hlth Policy (3.0 cr)
- BTHX 8000 - Advanced Topics in Bioethics (1.0 - 4.0 cr)
- CMB 5910 - Grantwriting: What Makes a Winning Proposal? (2.0 cr)
- CSCI 5461 - Functional Genomics, Systems Biology, and Bioinformatics (3.0 cr)
- CSCI 5465 - Introduction to Computing for Biologists (3.0 cr)
- GCD 5005 - Computer Programming for Biology (3.0 cr)
- GCD 5036 - Molecular Cell Biology (3.0 cr)
- GCD 8008 - Mammalian Gene Transfer and Genome Engineering (2.0 cr)
- GCD 8131 - Advanced Molecular Genetics and Genomics (3.0 cr)
- GCD 8141 - Computational Genomics (3.0 cr)
- GCD 8151 - Cellular Biochemistry and Cell Biology (2.0 - 4.0 cr)
- GCD 8161 - Advanced Cell Biology and Development (2.0 cr)
- MICA 8003 - Immunity and Immunopathology (4.0 cr)
- MICA 8004 - Cellular and Cancer Biology (4.0 cr)
- MICA 8014 - Small RNA Biology (2.0 cr)
- MILI 6235 - Pharmaceutical Industry: Business and Policy (2.0 cr)
- MILI 6726 - Medical Device Industry: Business and Public Policy (2.0 cr)
- MILI 6985 - The Health Care Marketplace (2.0 cr)
- MILI 6995 - Medical Industry Valuation Laboratory (2.0 cr)
- NSC 5461 - Cellular and Molecular Neuroscience (3.0 cr)
- NSC 8026 - Neuro-Immune Interactions (3.0 cr)
- NSC 8211 - Developmental Neurobiology (2.0 - 4.0 cr)
- NSCI 5101 - Neurobiology I: Molecules, Cells, and Systems (3.0 cr)
- NSCI 5501 - Neurodegenerative Diseases, Mechanisms to Therapies (3.0 cr)
- PHCL 5110 - Introduction to Pharmacology (3.0 cr)
- PHCL 5112 - Foundations of Biomedical Research (1.0 - 2.0 cr)
- PHSL 5061 - Principles of Physiology for Biomedical Engineering (4.0 cr)
- PHSL 5197 - Stress Physiology (1.0 - 3.0 cr)
- PHSL 5211 - Physiology of Inflammation in Disease (3.0 cr)
- PHSL 5221 - Systems and Computational Physiology (3.0 cr)
- PHSL 5510 - Advanced Cardiac Physiology and Anatomy (2.0 - 3.0 cr)
- PHSL 8242 - Professional Skills Development for Biomedical Scientists (2.0 cr)
- PSY 5063 - Introduction to Functional MRI (3.0 cr)
- PUBH 6450 - Biostatistics I (4.0 cr)
- PUBH 6451 - Biostatistics II (4.0 cr)