

MS IN BIOLOGY - CELL AND MOLECULAR BIOLOGY CONCENTRATION

Cell/Molecular Biology Concentration

The master's degree in biology (cell/molecular biology concentration) is awarded to a student who has demonstrated mastery in the field of biology and a distinct ability to make substantial contributions to the field. It is not awarded merely as a result of courses taken, nor for years spent in studying or research. The quality of work and the resourcefulness of the student must be such that the faculty can expect a continuing effort toward the advancement of knowledge and significant achievement in research and related activities.

The master's degree in biology prepares students to enter research careers in industrial and entrepreneurial settings, and non-research careers in a variety of areas including public policy, science communication, intellectual property law, and science education.

30 credit hours are required to earn the the master's degree and work and typically takes two-three years of study beyond the bachelor's degree. A substantial portion of this time is spent in independent research leading to a thesis.

Cell/Molecular Biology Concentration Option A (Thesis)

For the degree of master of science in biology (cell/ molecular biology concentration), a student must complete a minimum of 30 semester hours of graduate course work approved by an advisory committee, including:

| Code | Title | Hours |
|--------------------|---|-----------|
| BIOL 6000 | Introduction To Scientific Thought And Expression | 3 |
| BIOL 6010 | Advanced Molecular Biology | 3 |
| BIOL 6090 | Advanced Cell Biology | 3 |
| BIOL 6100 | Research Methodology: Cell And Molecular Biology | 3 |
| BIOL 6200 | Advanced Signal Transduction | 3 |
| BIOL 6930 | Seminar In Biology (take twice) | 2 |
| BIOL 6030 | Introduction to Graduate Studies | 2 |
| BIOL 6040 | Introduction to Graduate Cell and Molecular Biology and Methods | 3 |
| BIOL 6960 | Masters Thesis Research | 8 |
| Total Hours | | 30 |

Option B (Non-thesis)

For the degree of master of science in biology, a student must complete a minimum of 30 semester hours of graduate course work approved by an advisory committee, including:

| Code | Title | Hours |
|-----------|----------------------------|-------|
| BIOL 6010 | Advanced Molecular Biology | 3 |
| BIOL 6090 | Advanced Cell Biology | 3 |

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| BIOL 6100 | Research Methodology: Cell And Molecular Biology | 3 |
| BIOL 6930 | Seminar In Biology (take twice) | 2 |
| BIOL 6030 | Introduction to Graduate Studies | 2 |
| BIOL 6040 | Introduction to Graduate Cell and Molecular Biology and Methods | 3 |
| BIOL 6200 | Advanced Signal Transduction | 3 |
| BIOL 6990 | Advanced Readings In Biology | 3 |
| Select additional course and research credits at 5000-6000 level | | 8 |
| Total Hours | | 30 |

Up to 10 hours of graduate credit may be transferred from another accredited institution, as recommended by the student's advisory committee.

Cell and Molecular Biology Learning Outcomes

- PLO 1. Students will demonstrate an in-depth understanding of and the ability to communicate scientific information within an area of specialized study within the biological sciences.
- PLO2. Students will demonstrate an understanding of how to conduct experiments, collect and interpret data, and disseminate those data in written and verbal modalities.
- PLO 3. Thesis track: Students will demonstrate an ability to conduct experiments, collect and interpret data, and disseminate those data in written and verbal modalities.
- PLO 4. Non-thesis track: Students will demonstrate an ability to review and evaluate the published literature and effectively communicate their findings in verbal and written modalities.
- PLO 5. Students will demonstrate knowledge of their ethical responsibility when conducting research in terms of proper scientific conduct and the rights of human subjects.