

# INTEGRATED BIOTECHNOLOGY, MASTER OF SCIENCE

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The Master of Science in Integrated Biotechnology (MSIB) is designed to prepare students for a successful career in the rapidly growing biotech sector. As the first STEM degree in the Department of Natural Sciences, this fully online program provides a solid foundation for careers in biotechnology and can also pave the way for further graduate or professional training.

Earning the Master of Science in Integrated Biotechnology degree requires successfully completing 30-credit hours of coursework that includes six hours of electives. There are two areas of concentration: the biomedical track and the environmental track. This fully online master's degree can be completed in two (2) years or four (4) semesters.

| Code                              | Title   | Semester<br>Hours |
|-----------------------------------|---|-------------------|
| <b>Core Courses (15 hours)</b>    |   |                   |
| IGBT 5000                         | Topics in Biotechnology                             | 3                 |
| IGBT 5010                         | Advanced Molecular Biology and Biochemistry         | 3                 |
| IGBT 5020                         | Safety and Ethics in Biotechnology                  | 3                 |
| IGBT 5040                         | Research Internship                                 | 6                 |
| <b>Select a Track (9 hours)</b>   |   | <b>9</b>          |
| <i>Track 1, Biomedical</i>        |   |                   |
| IGBT 5110                         | Biomedical Sciences and Technology                  |                   |
| IGBT 5120                         | Medical Microbiology & Immunology                   |                   |
| IGBT 5130                         | Molecular Diagnostics                               |                   |
| <i>Track 2, Environmental</i>     |   |                   |
| IGBT 5210                         | Environmental Toxicology                            |                   |
| IGBT 5220                         | Environmental Microbiology                          |                   |
| IGBT 5230                         | Quantitative Analysis of Environmental Contaminants |                   |
| <b>Elective Courses (6 hours)</b> |   | <b>6</b>          |
| IGBT 6010                         | Bioinformatics and Data Science                     |                   |
| IGBT 6020                         | Genetic Engineering                                 |                   |
| IGBT 6030                         | Synthetic Biology                                   |                   |
| IGBT 6110                         | Advanced Physiology                                 |                   |
| IGBT 6120                         | Cancer Biology                                      |                   |
| IGBT 6210                         | Environmental Pollution and Human Health            |                   |
| IGBT 6230                         | Introduction to Nanobiotechnology                   |                   |
| IGBT 6310                         | Special Topics in Plant Biotechnology               |                   |
| IGBT 6330                         | Biotechnology Management                            |                   |