Biotechnology (Minor)

M.S. and Ph.D. minors in biotechnology are available to students who successfully complete at least eight credit hours in selected laboratory core courses and conduct their graduate thesis research in an area of biotechnology. At least one member of the student's thesis committee must be a member of the Biotechnology faculty (http://biotech.ncsu.edu/faculty/). Research in biotechnology is focused in three main areas: recombinant DNA technology, bioprocessing/bioanalytical techniques, and in vitro culture techniques. The multidisciplinary nature of biotechnology means that a wide range of research topics and techniques are applicable. For more information contact Dr. Robert Kelly (rmkelly@ncsu.edu).

Students wishing to pursue graduate studies leading to either a M.S. or Ph.D. minor in biotechnology must enroll and conduct their research in a participating department. For specific information about enrollment requirements, contact the participating departments (http://www.grad.ncsu.edu/catalog/default.asp#DEGREES) of interest to you directly. For general information about graduate education at NCSU contact the Graduate School (http://www.ncsu.edu/grad/), 1020 Main Campus Drive, Box 7102, NCSU, Raleigh, NC 27695.

Plan Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td><strong>Required Course</strong></td>
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<td><strong>4</strong></td>
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<tr>
<td>BIT 510</td>
<td>Core Technologies in Molecular and Cellular Biology</td>
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</table>

**Elective Courses** 4

Select two of the following:

- BIT 564 Protein Purification
- BIT 565 Real-time PCR Techniques
- BIT 566 Animal Cell Culture Techniques
- BIT 567 PCR and DNA Fingerprinting
- BIT 568 Genome Mapping
- BIT 571 RNA Interference and Model Organisms
- BIT 573 Protein Interactions
- BIT 574 Plant Genetic Engineering
- BIT 577 Metagenomics
- BIT 578 Mapping the Brain
- BIT 579 High-Throughput Discovery
- BIT 580 Yeast Metabolic Engineering
- BIT 581 Plant Transformation
- BIT 815 Advanced Special Topics (Professional Development)
- BIT 815 Advanced Special Topics (Research Ethics)
- BIT 815 Advanced Special Topics (Capstone Biotechnology)

Additional courses will be determined in conjunction with the academic committee.

Total Hours 8

Students may place out of BIT 510 if they have had either a similar course as an undergraduate or if they have substantial practical experience and conceptual knowledge of the material covered. The approval to place out of BIT 510 is made by the Academic Advisor of the Biotechnology Program, in conjunction with consultation with the student's thesis advisor. If placing out of BIT 510, the student will instead take one additional 2-credit BIT lab course for a total of three (and will complete the minor requirements with 6 credits of coursework rather than 8).

Full Professor

Robert M. Kelly

Practice/Research/Teaching Professors

Stefanie Chen
Carlos C. Goller
Melissa Srougi