



# Molecular Biology and Bioinformatics Emphasis

2010-11 catalog

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The degree tract in Molecular Biology and Bioinformatics is based on an interdisciplinary education centered in biology, chemistry, mathematics, and computer information systems. This track of study is geared to the student who is interested in careers in the fast growing area of Molecular Biology and Bioinformation in Biotechnology. Students completing this tract are ready for graduate school, professional school, or entry into industry. Students entering into the Molecular Biology and Bioinformatics tract should have a good background in math, science, and computers.

## Molecular Biology and Bioinformatics Course Requirements

| <b>Biology Courses</b>      | <b>Course Name</b>  | <b>Cr.</b>     | <b>Semester</b> |
|-----------------------------|---|----------------|-----------------|
| BIOL 171                    | Career Planning   | 1              |                 |
| BIOL 181/L                  | College Biology I-Organismal/Lab                            | 4              |                 |
| BIOL 182/L                  | College Biology II-Cellular/Lab                             | 4              |                 |
| BIOL 201/L or 202/L         | Botany or Zoology/Lab                                       | 4              |                 |
| BIOL 301/L                  | General Microbiology/Lab                                    | 5              |                 |
| BIOL 350                    | Mendelian and Population Genetics                           | 2              |                 |
| BIOL 351/L                  | Molecular Biology and Genetics/Lab                          | 4              |                 |
| BIOL 352                    | Evolutionary Biology and Ecology                            | 3              |                 |
| BIOL 412/L                  | Cellular Biology/Lab  | 4              |                 |
| BIOL 450/L                  | Survey of Genomics and Bioinformatics                       | 3              |                 |
| BIOL 493                    | Seminar   | 1              |                 |
| Biology Electives*          | See Electives Sheet   | 5              |                 |
|                             | Biology Total   | 40             |                 |
| <b>Chemistry Courses</b>    |   |                |                 |
| CHEM 121/L                  | General Chemistry I/Lab                                     | 5              |                 |
| CHEM 122/L                  | General Chemistry II/Lab                                    | 5              |                 |
| CHEM 301/L                  | Organic Chemistry I/Lab                                     | 5              |                 |
| CHEM 302/L                  | Organic Chemistry II/Lab                                    | 5              |                 |
| CHEM 411                    | Biochemistry I  | 3              |                 |
| CHEM 412/L                  | Biochemistry II/Lab   | 5              |                 |
|                             | Chemistry Total   | 28             |                 |
| <b>Math Courses</b>         |   |                |                 |
| MATH 126                    | Calculus and Analytic Geometry I                            | 5              |                 |
| MATH 224                    | Calculus and Analytic Geometry II                           | 5              |                 |
| MATH 256                    | Probability for Engineers and Scientists                    | 3              |                 |
| MATH 356                    | Statistics for Engineers and Scientists                     | 3              |                 |
|                             | Math Total  | 16             |                 |
| <b>Physics Course</b>       |   |                |                 |
| PHYS 201/L OR<br>PHYS 221/L | Principles of Physics I/Lab OR<br>General Physics I/Lab     | 4<br>5         |                 |
| PHYS 202/L OR<br>PHYS 222/L | Principles of Physics II I/Lab OR<br>General Physics II/Lab | 4<br>5         |                 |
|                             | PhysicsTotal  | 8-10           |                 |
| <b>Other Courses</b>        |   |                |                 |
| CIS 171                     | Intro to Java Programming                                   | 4              |                 |
| ENG 101/102                 | English Composition I and II                                | 6              |                 |
| SPCOM 103                   | Speaking and Listening                                      | 3              |                 |
| History                     |   | 3              |                 |
| Humanities                  |   | 6              |                 |
| Social Sciences             |   | 6              |                 |
|                             | <b>Overall Total Credits</b>                                | <b>120-122</b> |                 |

**\*Suggested Biology Electives:** Medical Microbiology (302/L); Immunology (402); Molecular Genetics (440); Histology (421/L); Developmental Biology (432/L)