Bioinformatics, Minor

Director: Lisa Petrella, Ph.D.

Bioinformatics is a field that lies at the intersection of biology, statistics and computer science and is focused on the analysis of large biological datasets. This interdisciplinary major gives students training of sufficient depth in both biology and computer science that they are competent to approach problems in bioinformatics from the perspective of both parent fields.

Interdisciplinary Bioinformatics Minor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3201</td>
<td>Genetics 1</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 4201</td>
<td>Genomics and Bioinformatics</td>
<td>3</td>
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</table>

**Biology Elective - Choose one of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 2001</td>
<td>Principles of Biological Investigation</td>
<td></td>
</tr>
<tr>
<td>BIOL 3101</td>
<td>Biochemistry and the Molecular Basis of Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 3400</td>
<td>Ecology</td>
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<tr>
<td>BIOL 3404</td>
<td>Evolutionary Biology</td>
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<td>BIOL 4404</td>
<td>Molecular Evolution</td>
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<tr>
<td>COSC 2100</td>
<td>Data Structures 2</td>
<td>3</td>
</tr>
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</table>

**Choose one of the following:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 2780</td>
<td>Introduction to Regression and Classification</td>
<td>3</td>
</tr>
<tr>
<td>MATH 3700</td>
<td>An Introduction to Modeling with Simulation and Scientific Computing</td>
<td></td>
</tr>
<tr>
<td>COSC 3570</td>
<td>Introduction to Data Science</td>
<td></td>
</tr>
<tr>
<td>or MATH 3570</td>
<td>Introduction to Data Science</td>
<td></td>
</tr>
<tr>
<td>COSC 4610</td>
<td>Data Mining</td>
<td></td>
</tr>
<tr>
<td>MATH 4730</td>
<td>Introduction to R for Statistics and Data Science</td>
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<tr>
<td>MATH 4740</td>
<td>Biostatistical Methods and Models 3</td>
<td>3</td>
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<tr>
<td>or MATH 4720</td>
<td>Statistical Methods</td>
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</tbody>
</table>

**Total Credit Hours:** 19

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1. BIOL 1001 General Biology 1 is a prerequisite for BIOL 3201 Genetics.
2. COSC 1020 Object-Oriented Software Design is a prerequisite for COSC 2100 Data Structures.
3. MATH 1400 Elements of Calculus, MATH 1410 Calculus for the Biological Sciences or MATH 1450 Calculus 1 is a prerequisite for MATH 4740 Biostatistical Methods and Models and MATH 4720 Statistical Methods.

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