BIOINFORMATICS: CHEMICAL & BIOMOLECULAR ENGINEERING, MS

for the Master of Science in Bioinformatics, Chemical & Biomolecular Engineering Concentration

This program is not currently accepting applications.

Other Graduate Programs in Chemical & Biomolecular Engineering

degrees:

Chemical Engineering, MS (http://catalog.illinois.edu/graduate/las/chemical-engineering-ms/)
Chemical Engineering, PhD (http://catalog.illinois.edu/graduate/las/chemical-engineering-phd/)

optional concentrations:
Computational Science and Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/)

The Department of Chemical & Biomolecular Engineering offers graduate programs leading to degrees of Master of Science and Doctor of Philosophy in Chemical Engineering, as well as a Chemical & Biomolecular Engineering Concentration under the MS in Bioinformatics.

for the Master of Science in Bioinformatics, Chemical & Biomolecular Engineering Concentration

For additional details and requirements for all degrees, please refer to the department’s Graduate Studies Web site (https://chbe.illinois.edu/graduate-program/) and the Graduate College Handbook (http://grad.illinois.edu/gradhandbook/).

Thesis Option

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 411</td>
<td>Database Systems</td>
<td>4</td>
</tr>
<tr>
<td>CS 466</td>
<td>Introduction to Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>CS 473</td>
<td>Algorithms</td>
<td></td>
</tr>
<tr>
<td>CPSC 565</td>
<td>Perl &amp; UNIX for Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>IS 455</td>
<td>Database Design and Prototyping</td>
<td></td>
</tr>
<tr>
<td>IS 542</td>
<td>Research and Inquiry for Youth</td>
<td></td>
</tr>
<tr>
<td>STAT 428</td>
<td>Statistical Computing</td>
<td></td>
</tr>
<tr>
<td>STAT 440</td>
<td>Statistical Data Management</td>
<td></td>
</tr>
<tr>
<td>STAT 448</td>
<td>Advanced Data Analysis</td>
<td></td>
</tr>
<tr>
<td>STAT 480</td>
<td>Big Data Analytics</td>
<td></td>
</tr>
<tr>
<td>STAT 525</td>
<td>Computational Statistics</td>
<td></td>
</tr>
<tr>
<td>ANSC 542</td>
<td>Applied Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>ANSC 545</td>
<td>Statistical Genomics</td>
<td></td>
</tr>
<tr>
<td>CHBE 571</td>
<td>Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>CPSC 567</td>
<td>Bioinformatics &amp; Systems Biol</td>
<td></td>
</tr>
<tr>
<td>CS 466</td>
<td>Introduction to Bioinformatics</td>
<td></td>
</tr>
<tr>
<td>IB 467</td>
<td>Principles of Systematics</td>
<td></td>
</tr>
<tr>
<td>MCB 432</td>
<td>Computing in Molecular Biology</td>
<td></td>
</tr>
<tr>
<td>ANSC 441</td>
<td>Human Genetics</td>
<td></td>
</tr>
<tr>
<td>ANSC 444</td>
<td>Applied Animal Genetics</td>
<td></td>
</tr>
<tr>
<td>ANSC 446</td>
<td>Population Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOP 401</td>
<td>Introduction to Biophysics</td>
<td></td>
</tr>
<tr>
<td>BIOP 550</td>
<td>Biomolecular Physics</td>
<td></td>
</tr>
<tr>
<td>CPSC 452</td>
<td>Advanced Plant Genetics</td>
<td></td>
</tr>
</tbody>
</table>

Information listed in this catalog is current as of 11/2022
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPSC 466</td>
<td>Genomics for Plant Improvement</td>
</tr>
<tr>
<td>CPSC 563</td>
<td>Chromosomes</td>
</tr>
<tr>
<td>CPSC 564</td>
<td></td>
</tr>
<tr>
<td>CPSC 566</td>
<td>Plant Gene Regulation</td>
</tr>
<tr>
<td>MCB 400</td>
<td>Cancer Cell Biology</td>
</tr>
<tr>
<td>MCB 450</td>
<td>Introductory Biochemistry</td>
</tr>
<tr>
<td>MCB 501</td>
<td>Advanced Biochemistry</td>
</tr>
<tr>
<td>MCB 502</td>
<td>Advanced Molecular and Cell Biology</td>
</tr>
<tr>
<td>CHBE 572</td>
<td>Metabolic Systems Engineering</td>
</tr>
<tr>
<td>CHBE 580</td>
<td>and Lab Techs in Bioinformatics</td>
</tr>
<tr>
<td>CHBE 599</td>
<td>Thesis Research (min/max applied toward degree)</td>
</tr>
</tbody>
</table>

**Total Hours**  32

**Other Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 500-level Hours Required Overall:</td>
<td>12</td>
</tr>
<tr>
<td>Minimum GPA:</td>
<td>2.75</td>
</tr>
</tbody>
</table>

**Non-Thesis Option**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 411</td>
<td>Database Systems</td>
</tr>
<tr>
<td>CS 466</td>
<td>Introduction to Bioinformatics</td>
</tr>
<tr>
<td>CS 473</td>
<td>Algorithms</td>
</tr>
<tr>
<td>CPSC 565</td>
<td>Perl &amp; UNIX for Bioinformatics</td>
</tr>
<tr>
<td>IS 455</td>
<td>Database Design and Prototyping</td>
</tr>
<tr>
<td>IS 542</td>
<td>Research and Inquiry for Youth</td>
</tr>
<tr>
<td>STAT 428</td>
<td>Statistical Computing</td>
</tr>
<tr>
<td>STAT 440</td>
<td>Statistical Data Management</td>
</tr>
<tr>
<td>STAT 448</td>
<td>Advanced Data Analysis</td>
</tr>
<tr>
<td>STAT 480</td>
<td>Big Data Analytics</td>
</tr>
<tr>
<td>STAT 525</td>
<td>Computational Statistics</td>
</tr>
<tr>
<td>ANSC 542</td>
<td>Applied Bioinformatics</td>
</tr>
<tr>
<td>ANSC 545</td>
<td>Statistical Genomics</td>
</tr>
<tr>
<td>CHBE 571</td>
<td>Bioinformatics</td>
</tr>
<tr>
<td>CPSC 567</td>
<td>Bioinformatics &amp; Systems Biol</td>
</tr>
<tr>
<td>IB 467</td>
<td>Principles of Systematics</td>
</tr>
<tr>
<td>MCB 432</td>
<td>Computing in Molecular Biology</td>
</tr>
<tr>
<td>ANSC 441</td>
<td>Human Genetics</td>
</tr>
<tr>
<td>ANSC 444</td>
<td>Applied Animal Genetics</td>
</tr>
<tr>
<td>ANSC 446</td>
<td>Population Genetics</td>
</tr>
<tr>
<td>BIOP 401</td>
<td>Introduction to Biophysics</td>
</tr>
<tr>
<td>BIOP 550</td>
<td>Biomolecular Physics</td>
</tr>
<tr>
<td>CPSC 452</td>
<td>Advanced Plant Genetics</td>
</tr>
<tr>
<td>CPSC 466</td>
<td>Genomics for Plant Improvement</td>
</tr>
<tr>
<td>CPSC 563</td>
<td>Chromosomes</td>
</tr>
<tr>
<td>CPSC 564</td>
<td></td>
</tr>
<tr>
<td>CPSC 566</td>
<td>Plant Gene Regulation</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>MCB 400</td>
<td>Cancer Cell Biology</td>
</tr>
<tr>
<td>MCB 450</td>
<td>Introductory Biochemistry</td>
</tr>
<tr>
<td>MCB 501</td>
<td>Advanced Biochemistry</td>
</tr>
<tr>
<td>MCB 502</td>
<td>Advanced Molecular and Cell Biology</td>
</tr>
<tr>
<td>CHBE 572</td>
<td>Metabolic Systems Engineering</td>
</tr>
<tr>
<td>&amp; CHBE 580</td>
<td>and Lab Techs in Bioinformatics</td>
</tr>
</tbody>
</table>

**Total Hours**: 36

**Other Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other requirements may overlap</td>
<td></td>
</tr>
<tr>
<td>A concentration is required.</td>
<td></td>
</tr>
<tr>
<td>Minimum 500-level Hours Required Overall:</td>
<td>12</td>
</tr>
<tr>
<td>Minimum GPA:</td>
<td>2.75</td>
</tr>
</tbody>
</table>