# BIOINFORMATICS - MASTER OF SCIENCE

The degree requirements include 30 graduate credit hours. The requirements are structured as follows:

## Introductory Courses

Select Computational or Life Sciences Track

### Computational Track
- C S 462 Object Oriented Programming Transition
- C S 468 Software Development Transition
- C S 469 Data Structure and Algorithms Transition

### Life Sciences Track
- C S 508 Introduction to Data Mining
- C S 570 Analysis of Algorithms
- C S 581 Advanced Software Engineering

## Core Courses

Select one from the following:
- C S 516 Bioinformatics
- GENE 452 Applied Bioinformatics
- BIOL 566 Advanced Bioinformatics and NCBI Database

## Elective Courses

Select 6 credits from the following:
- A ST 505 Statistical Inference I
- A ST 506 Statistical Inference II
- AGRO 506 Plant Genetics
- BCHE 542 Biochemistry I
- BCHE 546 Biochemistry II
- BCHE 649 Topics in Biochemistry
- BIOL 474 Immunology
- BIOL 475 Virology
- BIOL 478 Molecular Biology of Microorganisms
- BIOL 490 Neurobiology
- BIOL 520 Molecular Cell Biology
- BIOL 566 Advanced Bioinformatics and NCBI Database
- C S 502 Database Management Systems I
- C S 505 Artificial Intelligence I
- C S 508 Introduction to Data Mining
- C S 516 Bioinformatics
- C S 521 Parallel Programming
- C S 570 Analysis of Algorithms
- C S 572 Advanced Algorithms
- C S 575 Artificial Intelligence II
- C S 581 Advanced Software Engineering
- C S 582 Database Management Systems II
- GENE 452 Applied Bioinformatics
- GENE 486 Genes and Genomes
- GENE 488 Gene Regulation

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>HORT 506</td>
<td>Plant Genetics</td>
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<tr>
<td>MOLB 542</td>
<td>Biochemistry I</td>
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<tr>
<td>MOLB 546</td>
<td>Biochemistry II</td>
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<tr>
<td>MOLB 590</td>
<td>Discussions in Molecular Biology</td>
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## Master's Project / Thesis

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>C S 598</td>
<td>Master's Project</td>
<td>6</td>
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<tr>
<td>or C S 599</td>
<td>Master's Thesis</td>
<td>6</td>
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Total Credits 30

1. These courses provide foundational preparation in biological sciences and computational sciences.
2. These courses are intended for students with a Bachelor's degree in life sciences.
3. These courses are intended for students with a Bachelor's degree in computer sciences. These courses can be replaced by more advanced courses with written permission of the graduate advisor.
4. The goal of these courses is to expose the students to the central issues and techniques in the field of bioinformatics.
5. The goal of these courses is to allow students to specialize in a specific branch of bioinformatics.
6. Each master's student must write a thesis (C S 599 Master's Thesis) or, with the advisor's permission, undertake a research project (C S 598 Master's Project). In either case, the number of required graduate credits is 6 for the thesis or project. In all cases, the students are required to sustain a final exam, covering the thesis/research project.