# M.S. in Bioinformatics

## Degree Requirements

A minimum of 30 credits is required for the degree, excluding bridge courses. The graduate curriculum consists of five core courses and additional elective courses, with an optional thesis (six credits) or research project (three credits).

Students with non-computing STEM background may be accepted and required to take the following bridge courses (CS 506 may count toward the credits required for the MS degree):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CS 280</td>
<td>Programming Language Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CS 332</td>
<td>Principles of Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 505</td>
<td>Programming, Data Structures, and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 506</td>
<td>Foundations of Computer Science</td>
<td>3</td>
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<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
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## Curriculum

### Code

#### Title

**Core Courses**

- BNFO 601: Foundations of Bioinformatics I
- BNFO 602: Foundations of Bioinformatics II
- BNFO 615: Data Analysis in Bioinformatics
- BNFO 644: Data Mining and Management in Bioinformatics
- MATH 663: Introduction to Biostatistics

**Electives**

Select five of the following:

**Njit Electives**

- BME 661: Neural Engineering
- BME 671: Biomechanics of Human Structure and Motion
- CHEM 658: Advanced Physical Chemistry
- CHEM 673: Biochemistry
- CS 631: Data Management System Design
- CS 632: Advanced Database System Design
- CS 659: Image Processing and Analysis
- CS 634: Data Mining
- CS 681: Computer Vision
- CS 731: Applications of Database Systems
- CS 782: Pattern Recognition and Applications
- IS 634: Information Retrieval
- ECE 640: Digital Signal Processing
- ECE 673: Random Signal Analysis I
- MATH 635: Analytical Computational Neuroscience
- MATH 636: Systems Computational Neuroscience
- MATH 637: Foundations of Mathematical Biology
- MATH 662: Probability Distributions

**Rutgers-Newark Electives**

- R120 512: Cell Biology: Methods & Appl
- R120 515: Molecular Bio Of Eukaryotes
- R120 516: Microbial Ecology
- R120 526: Topics in Cell Biology
- R120 548: Biology Of Cancer

**Total Credits**

- **15**
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>R120 573</td>
<td>Pharmacology</td>
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**RBHS Electives**

<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>UMD 5002</td>
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<tr>
<td>UMD 5200</td>
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**Total Credits** 30