RAMAPO COLLEGE OF NEW JERSEY

**School of Theoretical and Applied Science**

# Bioinformatics

Recommended Four-Year Plan (Fall 2018)

The recommended four-year plan is designed to provide a blueprint for students to complete their degrees within four years. Students must meet with their Major Advisor to develop a more individualized plan to complete their degree. This plan assumes that no developmental courses are required. If developmental courses are needed, students may have additional requirements to fulfill which are not listed in the plan and may extend degree completion.
**NOTE:** This recommended Four-Year Plan is applicable to students admitted into the major during the 2017-2018 academic year.

| First Year | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | **HRS** | | **Spring Semester** | **HRS** | |
| Gen Ed: INTD 101-First Year Seminar | 4 | | BIOL 112-Fundamentals of Biology II* | 4 | |
| Gen Ed: CHEM 116 & CHEM 116L-General Chemistry I Lecture & Lab | 4+1 | | CHEM 117 & CHEM 117L-General Chemistry II Lecture & Lab* | 4+1 | |
| Gen Ed: CRWT 102 - Critical Reading & Writing II | 4 | | CMPS 147-Computer Science I | 4 | |
| BIOL 111 & BIOL 111L-Fundamentals of Biology I Lecture & Lab **WI** | 4+1 | | Gen Ed: MATH 121-Calculus I* | 4 | |
| **Total:** | 18 | | **Total:** | 17 | |

| Second Year | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | **HRS** | | **Spring Semester** | **HRS** | |
| CHEM 211 & CHEM 211L -Organic Chemistry I Lecture & Lab * OR<br>CHEM 206 & CHEM 206L-Essentials of Organic Chemistry Lecture* & Lab* | 4+1 | | CHEM 213 & CHEM 213L-Organic Chemistry II Lecture* & Lab* OR Elective(s) | 4+1 | |
| CMPS 148-Computer Science II* | 4 | | BIOL 332 & BIOL 332L-Genetics Lecture & Lab* | 4+1.5 | |
| PSYC 242-Statistics OR<br>ENSC 345-Research Design & Statistics | 4 | | MATH 237-Discrete Structures* | 4 | |
| Gen Ed: Historical Perspective | 4 | | | | |
| **Total:** | 17 | | **Total:** | 14.5 | |

| Third Year | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | **HRS** | | **Spring Semester** | **HRS** | |
| BIOL 407 & BIOL 407L-Cell & Molecular Biology Lecture & Lab* **WI** | 4+1.5 | | BIIN 430-Bioinformatics* | 4 | |
| CMPS 231-Data Structures* | 4 | | CMPS 364-Database Design* | 4 | |
| Bioinformatics Elective (Group I) | 4 | | Gen Ed: Distribution | 4 | |
| Gen Ed: Social Science Inquiry | 4 | | Gen Ed: Studies in the Arts & Humanities | 4 | |
| **Total:** | 17.5 | | **Total:** | 16 | |

| Fourth Year | | | | | |
|---|---|---|---|---|---|
| **Fall Semester** | **HRS** | | **Spring Semester** | **HRS** | |
| CMPS 345-Analysis of Algorithms* | 4 | | BIIN 450-Advanced Bioinformatics* **WI** | 4 | |
| Gen Ed: Global Awareness | 4 | | Gen Ed: Distribution | 4 | |
| Bioinformatics Elective (one semester Honors Research) | 0-1 | | Bioinformatics Elective (Group I or II or second semester Honors Research) | 1 or 4 | |
| Bioinformatics Elective (Group II) | 4 | | Elective(s) | 2-5 | |

| | | | | | |
|---|---|---|---|---|---|
| Elective | 1-2 | | | | |
| **Total:** | 14 | | **Total:** | 14 | |

**Total Credits Required:** 128 credits
**GPA Required:** 2.0
*** This course has a pre-requisite. Please refer to the course catalog for information about pre-requisites.**
**WI: Writing Intensive-3 required in the major**