# BIOINFORMATICS MINOR

Bioinformatics is a highly interdisciplinary STEM field that integrates computational and statistical methods for analyzing large biological data sets. Bioinformaticians apply their biological and computational sciences backgrounds to develop, utilize, and optimize new computational tools to organize, synthesize, and analyze the rapidly increasing amount of biological and biomedical data.

The Bioinformatics minor at Loyola provides students with training and opportunities in this ground-breaking discipline, opening doors to career advancement and post-graduate possibilities for years to come.

## Related Programs

### Major

- Bioinformatics (BS) (https://catalog.luc.edu/undergraduate/arts-sciences/bioinformatics/bioinformatics-bs/)

### Combined

- Bioinformatics (BS/MS) (https://catalog.luc.edu/undergraduate/accelerated-bachelors-masters-program/bioinformatics-bsms/)

## Curriculum

### Degree Requirements

The following degree requirements are for students who have declared a minor in Bioinformatics.

| Code | Title | Hours |
|---|---|---|
| **Biology Fundamental Courses** | | |
| BIOL 101 | General Biology I | 3 |
| BIOL 282 | Genetics | 3 |
| BIOL 388 | Bioinformatics | 3 |
| **Computer Science Fundamental Courses** | | |
| MATH 215 | Object-Oriented Programming with Mathematics [1] | 3 |
| **Math/Stats Fundamental Courses** | | |
| MATH 131 | Applied Calculus I | 3 |
| MATH 132 | Applied Calculus II | 3 |
| STAT 335 | Introduction to Biostatistics | 3 |
| or STAT 203 | Introduction to Probability & Statistics | |
| STAT 337 | Quantitative Methods in Bioinformatics (Spring only) | 3 |
| **Bioinformatics Electives** | | |
| Select one of the following: | | 3 |
| BIOL 387 | Genomics (Spring only) | |
| BIOL 392 | Metagenomics (Fall only) | |
| BIOI 397 | Bioinformatics Survey | |
| **Total Hours** | | **27** |

[1] Maybe substituted with COMP 170 Introduction to Object-Oriented Programming

### Suggested Sequence of Courses

We suggest taking the 100-level or 200-level first as they are often prerequisites for advanced courses. For example, BIOL 101 General Biology I is a prerequisite for BIOL 282 Genetics, which, in turn, is a prerequisite for BIOL 388 Bioinformatics. For assistance with planning your course sequence for the Bioinformatics minor, please contact your Academic or Bioinformatics advisor.

## Additional Policies

There are no limits to **course-sharing** between the Bioinformatics minor and other majors/minors. However, the course-sharing policies of the other majors/minors must be considered.

The courses required for the minor also satisfy the following university Core Curriculum (https://catalog.luc.edu/undergraduate/university-requirements/university-core/) requirements: scientific literacy (6 credits) and quantitative analysis (3 credits).

## Learning Outcomes

Students minoring in Bioinformatics will be able to:

- explain genetics concepts,
- apply computational methods to biological data,
- apply statistical methods to biological data, and
- evaluate computational & statistical methods for the analysis of biological data.