

BS Bioinformatics Curriculum Map, Fall 2013

	Effective communication	Basic concepts of biol, physical sciences, math, stats, CS	Analyze scientific problems, develop solutions	Technical skill in using software, datasets, creating tools	Effective use of literature	Recommended year
BNFO 251: Phage Discovery I	1	1	1	0	1	First
BNFO 252: Phage Discovery II	2, A (writing)	1	1, A	1 (using tools, datasets)	2, A	First
BNFO 201: Basic Concepts and Methods in Bioinformatics	0	1	2	1-2 (introductory bioinformatics programming)	0	Second
LFSC 301: Integrative Life Sciences Research	2	2	0	0	2	Second
BNFO 300 Molecular Biology through Discovery	2	1	2	1	2	Second
BNFO 301: Intro to Bioinformatics	2	0	1	1	2	Third
BNFO 420: Applications in Bioinformatics	3, A	3, A	3, A	3, A	3, A	Fourth
BNFO 540: Fundamentals of Molecular Genetics	0	3	2	0	0	Fourth
BNFO 541: Laboratory in Molecular Genetics	3	2	3	1	3	Fourth

Bioinformatics core courses are listed in the recommended order of enrollment.

Numbers indicate mastery level goal for each learning objective: 0=does not teach; 1 = introduces students to outcome; 2 = gives students opportunity to practice outcome; 3 = gives students opportunity to demonstrate mastery of outcome.; A = data are collected to assess student learning

Degree Program Goals

- Graduates will have acquired fundamental skills in oral and written communication, critical thinking, information fluency and quantitative literacy, placed within the context of bioinformatics and science in general.
- Graduates will have acquired fundamental knowledge in the basic scientific disciplines of biology, chemistry, mathematics, physics, computer science and statistics.
- Graduates will be able to use the process of science to good effect, to formulate a significant problem, to find and critically build upon the work of others in multiple fields, to use or devise appropriate tools (including those of bioinformatics) to address the problem, and finally, to communicate their results in a meaningful way to the world.

Learning Outcomes

Graduates will have demonstrated:

- The ability to present scientific results, both orally and in writing, in a way that makes clear to an appropriate target audience the distinction between what is known (and how) and what is merely suspected and between an observation and a conclusion, in a way that tells a compelling story.
- Fundamental knowledge of the basic concepts of biology (particularly molecular biology), the physical sciences, mathematics, statistics, and computational science, and the ability to apply that knowledge within the context of bioinformatics.
- An ability to identify and analyze bioinformatics problems and strategies to solve said problems.
- An appropriate level of technical knowledge and ability necessary to address a scientific problem by exploiting biological software and datasets and creating simple bioinformatics tools.
- An ability to identify and access relevant scientific literature and draw from it in a meaningful and critical manner.