

# BIOINFORMATICS - MINOR

College of Sciences and Humanities  
Department of Computer Science  
www.kent.edu/cs

## About This Program

Bridge biology and technology with Kent State's Bioinformatics minor, where you'll gain in-demand skills in programming, data analysis and computational modeling. Designed to complement a variety of majors, this interdisciplinary program prepares you to tackle real-world challenges in healthcare, biotechnology and scientific research. Read more...

## Contact Information

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- Speak with an Advisor
  - Kent Campus
  - Stark Campus

## Program Delivery

- **Delivery:**
  - In person
- **Location:**
  - Kent Campus
  - Stark Campus

## Admission Requirements

Admission to a minor is open to students declared in a bachelor's degree, the A.A.B. or A.A.S. degree or the A.T.S. degree (not Individualized Program major). Students declared only in the A.A. or A.S. degree or the A.T.S. degree in Individualized Program may not declare a minor. Students may not pursue a minor and a major in the same discipline.

## Program Requirements

### Minor Requirements

Code	Title	Credit Hours
<b>Minor Prerequisites</b>		
MATH 11010	ALGEBRA FOR CALCULUS (KMCR)	
<b>Minor Requirements</b>		
BSCI 40218 or BSCI 40224	INTRODUCTION TO GENOMICS <sup>1</sup> QUANTITATIVE METHODS IN BIOLOGY	3
BSCI 40220 or BTEC 40220	BIOINFORMATICS BIOINFORMATICS	3
CS 10051	COMPUTER SCIENCE PRINCIPLES (KMCR)	4
CS 10062	PROGRAMMING FOR PROBLEM SOLVING IN SCIENCES	4
CS 20062	ADVANCED PROGRAMMING WITH PYTHON	4
CS 30062	PYTHON FOR DATA SCIENCE	3
<b>Minimum Total Credit Hours:</b>		<b>21</b>

<sup>1</sup> Students may seek an approved substitute to BSCI 40218 or BSCI 40224 in the same department.

## Graduation Requirements

Minimum Minor GPA	Minimum Overall GPA
2.000	2.000

- Minimum 6 credit hours in the minor must be upper-division coursework (30000 and 40000 level).
- Minimum 6 credit hours in the minor must be outside of the course requirements for any major or other minor the student is pursuing.
- Minimum 50 percent of the total credit hours for the minor must be taken at Kent State (in residence).

## Program Learning Outcomes

Graduates of this program will be able to:

1. Understand the essential facts, concepts, principles and theories related to computer science and data science.
2. Understand Python programming basics and data structures in Python.
3. Solve practical problems over real-world data using Python (e.g., data collection, cleaning, manipulation, visualization and machine learning).
4. Apply hands-on experience in Python projects for scientific data processing.
5. Collaborate with other team members in groups to complete scientific data processing projects.

## Full Description

The Bioinformatics minor provides a foundation in computer science and computational data processing for students in any field of biological sciences, allowing students to work with substantial computing and data science-oriented cyber systems. The minor enables students to competitively manage the computing and cyber aspects of their professions.

Students in the Bioinformatics minor will use Python programming language to import, clean, analyze, visualize and learn data from their real-world applications.