

## OUR STRENGTHS WORK TO YOUR ADVANTAGE

### Multi-disciplinary learning

Departments within the colleges of Agriculture and Natural Resources, Arts and Sciences, Engineering, Health Sciences, and Earth, Ocean, and Environment all contribute to the scientific curriculum. The programs are administered through the Department of Computer & Information Sciences and coordinated by the Center for Bioinformatics & Computational Biology.

### Professional experience

A special feature of our programs is close collaboration with major regional companies and institutions. Internships in the Professional Science Master (PSM) program provide on-the-job experience in specialized topics related to bioinformatics. Topics include bioinformatics methods, tool and database development and application of bioinformatics approaches to biotechnology and medicine. Industry research and analysis includes product development, ethical, legal and regulatory affairs, project management and operations management.

### Flexibility in scheduling

Both full-time and part-time options are available to meet your individual needs.

### Small town charm, first-rate research

The University of Delaware has a tradition of excellence, from our founding as a small private academy in 1743, to the research-intensive, technologically advanced institution of today. The campus offers the charm of a small college town, with easy access to major metropolitan areas.



Dare to be first.



### The Center for Bioinformatics & Computational Biology (CBCB)

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# CBCB CENTER FOR BIOINFORMATICS & COMPUTATIONAL BIOLOGY



## GRADUATE PROGRAMS IN

# BIOINFORMATICS & COMPUTATIONAL BIOLOGY

# BIOINFORMATICS & SYSTEMS BIOLOGY





# CENTER FOR BIOINFORMATICS & COMPUTATIONAL BIOLOGY

## WHAT IS BIOINFORMATICS?

**Bioinformatics** is an exciting, emerging field at the intersection of the biological and computational sciences. Bioinformatics develops and applies computational tools and techniques for collecting, analyzing, managing and visualizing biological data. Scientists and researchers in the field create modeling and simulation methods to study biological systems.

Advances in high-throughput biotechnologies and large-scale bioscience highlight the critical role of bioinformatics in modern biotechnology, drug discovery, disease diagnosis and systems medicine.

With the data explosion of "omics" biotechnologies and the promise of systems biology and personal genomics, there is high demand for bioinformatics professionals with computing and bioscience skills in both academia and industry.

## WHY UD?

Through graduate studies at the University of Delaware you will develop skills applicable for OR appropriate to academia, business, government or non-profit organizations in the fields of bioinformatics, computational biology, systems biology, medical informatics, biodefense and biotechnology. The degree options allow you to customize your education toward a career in research, education or industry. Multidisciplinary and flexible coursework includes topics such as proteomics, genomics, molecular evolution and bioinformatics applications. Internships are available with major regional companies and institutions.

## GRADUATE DEGREE PROGRAMS:

### Master of Science in Bioinformatics & Computational Biology (MS)

This thesis-based MS degree prepares students for advanced research. MS graduates develop the solid knowledge and research experience necessary to pursue further study towards a Ph.D. or other professional degrees in medicine, business and law, or to begin a research career in academia, industry or government.

### Professional Science Master's in Bioinformatics (PSM)



Enriched for professional skills, the scientific curriculum and the immersive internship encompassed in the PSM degree prepares graduates to pursue a professional career in industry or research.

### Graduate Certificate in Bioinformatics

Sharing the same bioinformatics science core curriculum as the other degrees, the graduate certificate in bioinformatics is ideally suited for working professionals who cannot make a commitment to the MS or PSM program at this time, but can use the certificate degree as a stepping-stone. The certificate can also complement other degree programs offered at the University of Delaware, allowing current graduate students to gain bioinformatics knowledge and skills.

## TWO CONCENTRATIONS WITHIN MASTER'S AND CERTIFICATE PROGRAMS

### Computational Sciences

The Computational Sciences concentration allows students to gain knowledge in developing bioinformatics methods, tools and/or databases for modern biotechnology or medicine.

### Life Sciences

The Life Sciences concentration allows students to gain knowledge in applying bioinformatics methods, tools and databases as an integral approach to modern biotechnology or medicine.

### PhD in Bioinformatics & Systems Biology

The PhD in bioinformatics and Systems Biology will train the next-generation of researchers and professionals who will play a key role in multi- and interdisciplinary teams, bridging life sciences and computational sciences. Students will receive training in experimental, computational and mathematical disciplines through their coursework and research. Students who complete this degree will be able to generate and analyze experimental data for biomedical research as well as develop physical or computational models of the molecular components that drive the behavior of the biological system.

## REQUIREMENTS

Applicants to the programs must be in the last semester of undergraduate study or hold an undergraduate degree in biological, computational sciences or other disciplines from an accredited four-year college or university. Applicants are expected to have scholarly competence in mathematics, computer science and/or biology.

### Application Requirements

- Grade point average of 3.0 or higher
- Official undergraduate transcripts
- Three letters of recommendation
- Personal statement
- TOEFL (for students from non-English speaking institutions)
- GRE for MS, PSM and PhD (GRE subject test not required)
- Resume/CV

### Degree Requirements

- MS: 33 credits, including thesis
- PSM: 42 credits, including internship
- Graduate Certificate: 15 credits
- PhD: 36-45 credits, including dissertation

### APPLICATION DEADLINES

Although programs have a rolling admissions process, we suggest applications be submitted before application deadlines. Late applications considered, subject to availability.

- **Fall: July 1st**  
To be eligible for financial aid, applicants must apply by April 1st.
- **Spring: December 1st**  
To be eligible for financial aid, applicants must apply by October 1st.

