

what can I do with a major in **Bioinformatics**

Bioinformatics is an interdisciplinary field that incorporates computer science and biology to research, develop, and apply computational tools and approaches to manage and process large sets of biological data. The Bioinformatics career focuses on creating software tools to store, manage, interpret, and analyze data at the genome, proteome, transcriptome, and metabolome levels. Primary investigations consist of integrating information from DNA and protein sequences and protein structure and function.

Some Characteristics of Bioinformatics Majors:

- ◆ Advanced math & computer programming skills
- ◆ Interest in molecular biology & genetics
- ◆ Data analysis skills
- ◆ Desire for intellectual growth
- ◆ Interest in government, academic, or private jobs
- ◆ Working in a growing field
- ◆ Precision and attention to details
- ◆ Inquisitive problem solver

What You Gain from Studying Bioinformatics:

Knowledge:

The Bioinformatics major offers training that builds a solid foundation in chemistry, biology, computer science, math and statistics. This training will enable students to communicate fluently with experts and provide the skills necessary to apply computing tools to contemporary problems in biology and medicine. Students can pursue medical, dental, and other health-professional schools and careers in research, academia, government, pharmaceutical, medical, or biotechnology sectors.

Skills:

- ◆ Critical thinking and problem solving
- ◆ Work independently and on a team
- ◆ Multitask and extract data
- ◆ Proficiency in computer languages
- ◆ Software design
- ◆ Experience w/ Bioinformatics tools & resources
- ◆ Oral and written communication

Participate in Student & Professional Organizations:

Student (Sponsored by Bio. Sci. Dept):

Biology Club

Tri-Beta Honors Society

Professional:

American Medical Informatics Association (AMIA)

International Society for Computational Biology

Midsouth Computational Biology & Bioinformatics Society

Careers in Bioinformatics:

Employment:

Bioinformatics jobs exist in biomedical, molecular medicine, energy development, biotechnology, environmental restoration, homeland security, forensic investigations, academia, agricultural, and animal science fields. Many entry level bioinformatics jobs accept a Bachelor's degree. You can advance from entry level to higher-level positions with additional education.

Need Bachelor's Degree

Agriculturist
Bioinformatics analyst,
programmer
Biologist (Fisheries,
marine, plant, wildlife)
Biomedical researcher
Biophysicist
Biostatistician
Biotechnologist
Clinical lab tech
Computational biologist
Computer engineer
Geneticist
Genetic engineer
Technical writer
Technician

Need Further Education

Epidemiologist
Medical illustrator
Physician
Professor
Programmer
Public health
Research specialist
Statistician

Learn More About Bioinformatics Careers:

Biological Sciences Advisors: Langley A258

www.biology.pitt.edu/undergraduate/advising

Computer Science Advisors: 6145 Sennott Sq.

www.cs.pitt.edu/undergrad/bioinformatics/bsbi-advise_policies.php

- ◆ Join the Bio. Newsletter for announcements
- ◆ Get advising info. before & after declaring major
- ◆ Meet w/ Bio. Sci. or Computer Sci. (CS) advisors
- ◆ Inquire about research & internship opportunities
- ◆ Find us on Facebook - Univ. of Pitt-Bioinformatics

Career Development: WPU 2nd Floor

www.careers.pitt.edu/

- ◆ Meet with a Career Counselor (in person or virtual)
- ◆ Take interest inventories and self-assessment tests
- ◆ Assistance w/ CVs, resumes, & cover letters
- ◆ Internship placement (guaranteed)
- ◆ Employment search – via Future Links & Pitt
- ◆ Job shadowing program
- ◆ Career fairs

What You Can Do Now:

- ◆ Gain research experience by teaming with a Biology or CS professor to conduct research
- ◆ Get an internship at NIH, CDC, computer company, translational science dept., biomedical research facility, cancer center, or hospital
- ◆ Get a job in a lab, research hospital, or IT company

Ways To Acquire Skills in Bioinformatics:

Internships

Internships provide hands-on experience in an area that interests you as a potential career. To find a biology related internship speak with a Bio. Sci. advisor or a Career Development advisor, and visit the links below.

- ◆ www.biology.pitt.edu/undergraduate/research/outside-pitt
- ◆ www.biology.pitt.edu/undergraduate/research-internships/starting-intern

Research

Various opportunities exist for students to participate in research experiences outside of the classroom to develop an understanding of inquiry based research. Research can be performed on campus during the term for credit or no credit, or during the summer as part of a summer undergraduate research experience program (REU, fellowship, co-op) on or off-campus. Check deadlines early.

- ◆ www.biology.pitt.edu/undergraduate/research
- ◆ www.asundergrad.pitt.edu/our/research
- ◆ www.undergradresearch.pitt.edu/research-opportunities/
- ◆ people.rit.edu/~gtfsbi/Symp/bioinformatics.htm

Undergraduate Teaching Assistant (UTA)

Being an undergraduate teaching assistant is a terrific way to share your knowledge, gain confidence, and prepare yourself for leadership roles. Many courses utilize UTAs, and you should contact the instructor directly.

www.biology.pitt.edu/undergraduate/uta

Places Bioinformatics Majors Have Interned:

Drug Discovery Institute

Pitt Dept. of Biomedical Informatics

Pitt Dept. of Computational & Systems Biology

Tutoring & Study Resources

Academic Resource Center (ARC)

Calculus & Statistics Labs

Fish Bowl – Chemistry Dept.

Learning Communities – Various residence halls

Math Assistance Center

Writing Center

This handout provides a sample of skills, jobs, and tips for individuals pursuing a degree in this major. It is not an exhaustive listing, but it gives insight into a career field that would employ the skills and knowledge gained through this major. Contact the Biological Sciences advisors if you have any questions.