BS in Bioinformatics

Big Data
Gene-Based Medicine
Cloud Computing
Disease Diagnosis
Clinical Research
Disease Modeling
Proteomics
BioStatistics
Systems Biology
Pathway Modeling
Structural Bioinformatics
NanoBiotechnology
Biotechnology
Drug Design
Bioinformatics
Big Data
Cancer Informatics
Computer Science
Data Mining
Mathematics
Translational Medicine
Genomics
Molecular Biology
Molecular Pathways
Computational Biology
Biomedical Informatics
Molecular Medicine
Evolutionary Bioinformatics
Personalized-Medicine

SCHOOL OF THEORETICAL AND APPLIED SCIENCE

Pioneering undergraduate bioinformatics education

RAMAPO COLLEGE OF NEW JERSEY

The Bioinformatics Degree Program

Mission

The undergraduate program in bioinformatics at Ramapo College builds a solid multidisciplinary foundation in biology, chemistry, computer science and mathematics using informatics as an interdisciplinary cohesive tool. In advanced courses, students are trained to manage biological data, develop computational methods to analyze and interpret data, solve scientific problems and make new discoveries. In addition to the
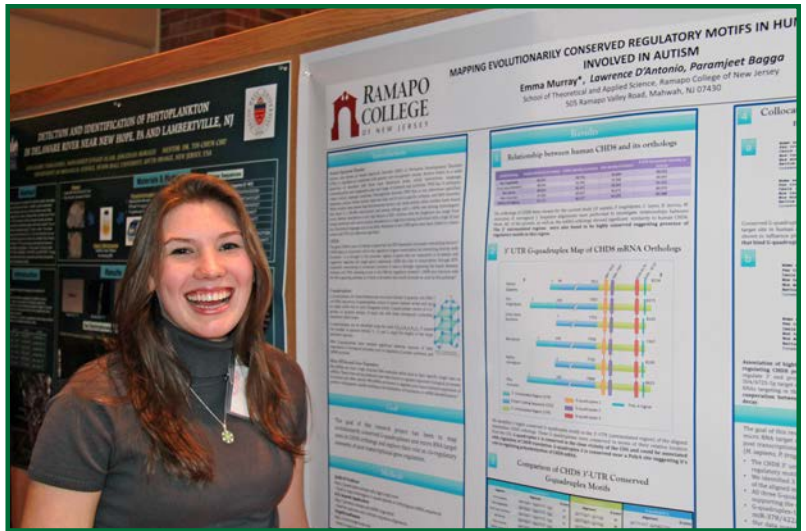
Ramapo College was the first in New Jersey and one of the first primarily undergraduate colleges in the United States to offer a baccalaureate degree in Bioinformatics.
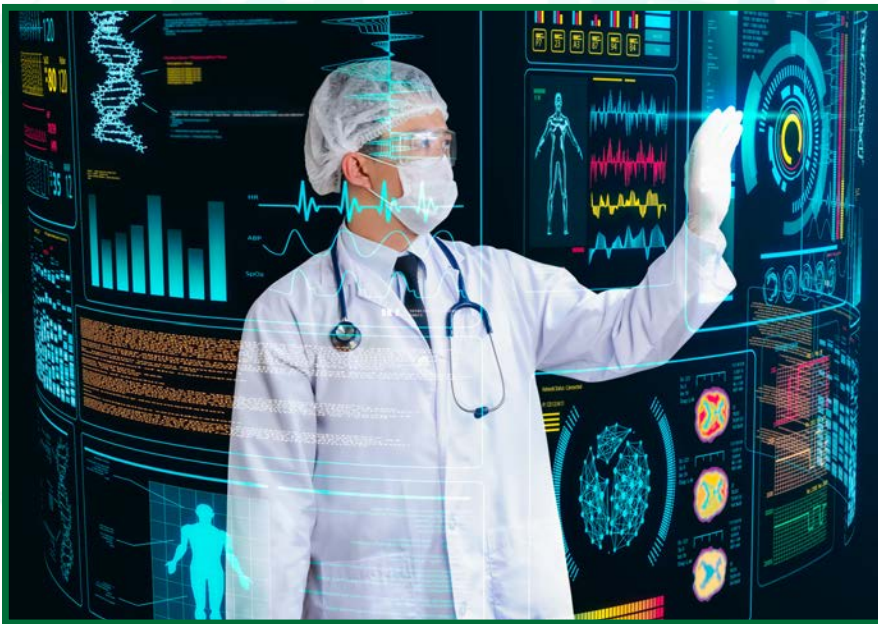
scientific and technical concepts, students are also exposed to the social, business, and ethical aspects of science. The career-oriented bioinformatics major prepares students for obtaining employment in industry and academia, pursuing graduate education, careers in medicine and related disciplines, or engaging in research in this technological field of great demand.

Why Ramapo College?

Northern New Jersey is a hub for the pharmaceutical industry and one of the largest centers of biotechnology. Ramapo College is located within a short distance from potential employers that seek work skills in bioinformatics and offer opportunities for internships. In addition, several institutions of higher education that offer graduate degrees and research opportunities are located in the area. Ramapo College is very well suited for the bioinformatics program.

Career Opportunities

There is an great demand for bioinformaticians to join the forefront of research areas in industry as well as academic institutions. Potential job options for Bioinformatics graduates include: research scientist,
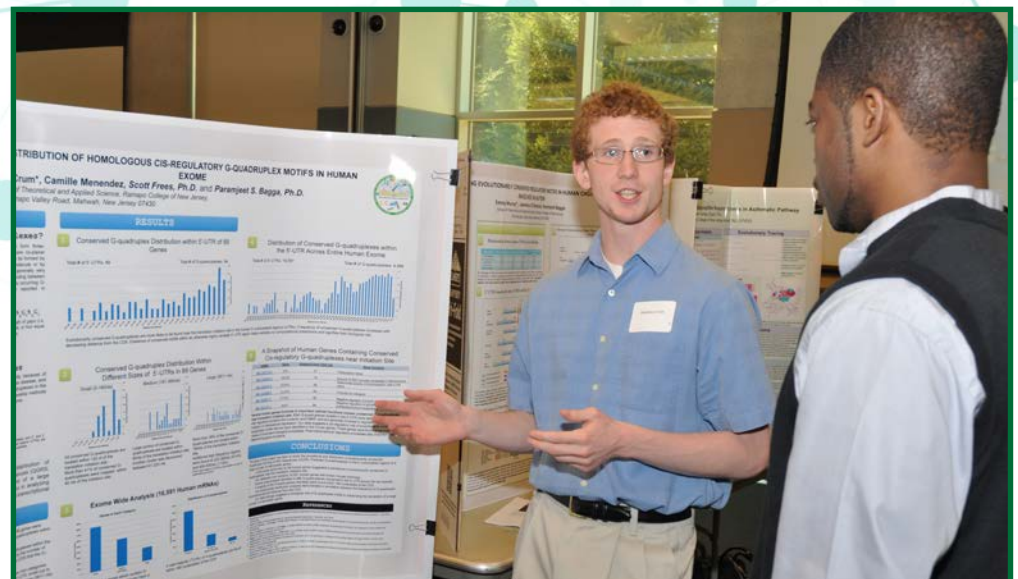
in the bioinformatics curriculum. Faculty members are actively engaged in research and typically involve undergraduate students in their projects. The areas of faculty research interest include: molecular biology, genomics, proteomics, structural bioinformatics, algorithms, object-oriented programming, pharmaceutical chemistry, molecular genetics, molecular systematics, database design, and web development.

Bioinformatics majors can participate in research projects under faculty supervision for credit. They may also work through the cooperative education program for industrial work experience or obtain paid summer research internships. Students are encouraged to present their research accomplishments at national and international conferences and publish their work in peer-reviewed journals.
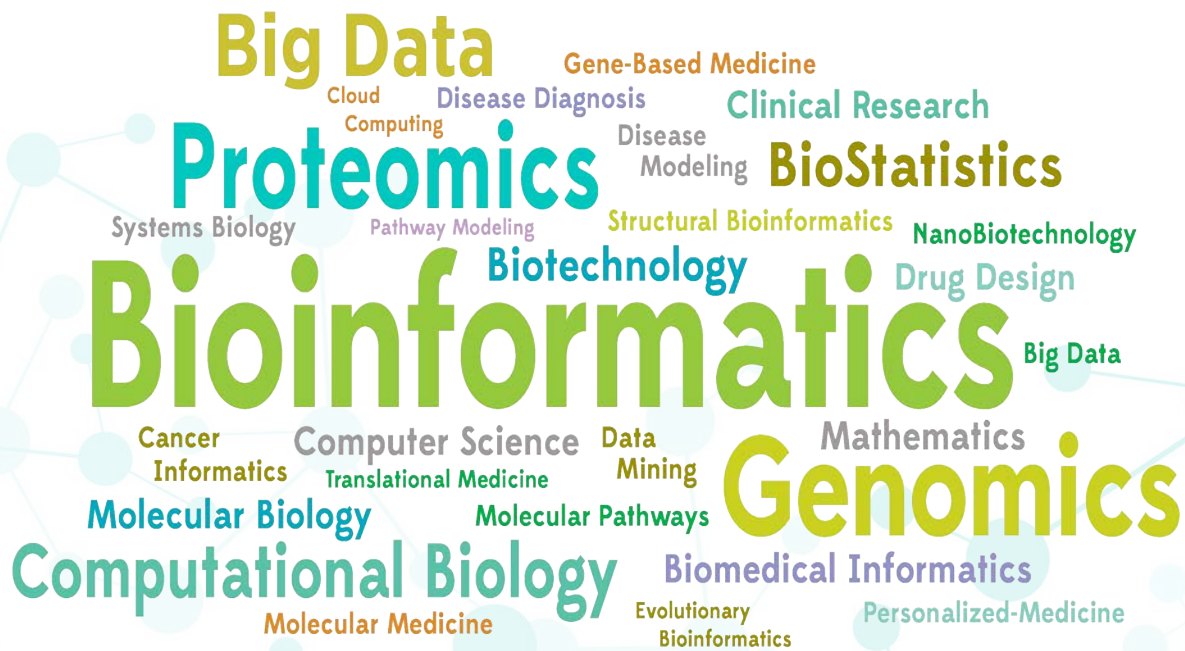
bioinformatics programmer, physician, project manager, database developer and administrator, technical assistant and technical sales representative (some of these may require graduate education). The Bioinformatics program also provides excellent preparation for graduate, medical & other professional schools. In addition to the pharmaceuticals, potential employers include research labs in academia, hospitals, governmental agencies, the software industry and the bioinformatics service industry.

Bioinformatics Faculty

The School of Theoretical and Applied Science faculty members excel at teaching and are also internationally recognized for their scholarship and participation in scientific organizations. Highly qualified and experienced educators teach courses

Big Data
Gene-Based Medicine
Cloud
Disease Diagnosis
Clinical Research
Computing
Disease
Proteomics
Modeling
BioStatistics
Systems Biology
Pathway Modeling
Structural Bioinformatics
NanoBiotechnology
Biotechnology
Drug Design
Bioinformatics
Big Data
Cancer
Computer Science
Data
Mathematics
Informatics
Mining
Translational Medicine
Genomics
Molecular Biology
Molecular Pathways
Computational Biology
Biomedical Informatics
Molecular Medicine
Evolutionary
Bioinformatics
Personalized-Medicine

What is Bioinformatics?

Bioinformatics is a modern interdisciplinary science that develops and applies computational methods to help frame and resolve biological problems. It can be used to analyze large biological data-sets and interpret the resulting information. Bioinformatics techniques help make new discoveries that were not possible with traditional sciences. The applications include: molecular modeling, gene discovery, assignment of functions to newly discovered genes, studying structure/function of proteins and biomolecular pathways. Bioinformatics is practiced in the fields of molecular, personalized and preventative medicine, biotechnology and nanobiotechnology.

Bioinformatics is revolutionizing the way medicine is done in the 21st century. For example, this powerful technology-oriented science can be applied to prevent, diagnose and treat diseases, design a new generation of drugs and vaccines, shorten the development cycle of new medicines, and develop gene-based medicinal treatments.
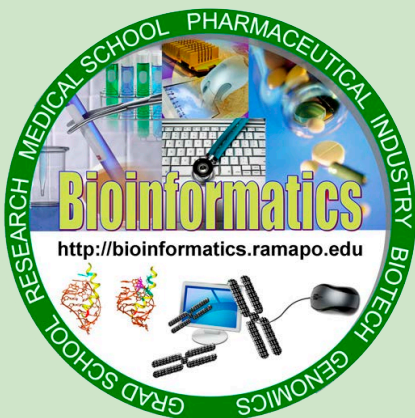
SCHOOL OF THEORETICAL AND APPLIED SCIENCE

Ramapo College of New Jersey
505 Ramapo Valley Road, Mahwah, NJ 07430

www.ramapo.edu
http://bioinformatics.ramapo.edu

Contact: **Paramjeet S. Bagga, Ph.D.,** Convener of Bioinformatics

Phone: (201) 684-7722 • Fax: (201) 684-7637 • E-mail: pbagga@ramapo.edu