Bioinformatics studies the sequence, structure, and function of genes and proteins in all living organisms, including the human species. The advent of high throughput next-generation sequencing (NGS) has accelerated the pace of genome-wide profiling of biological sequences from various assays (Chip-Seq, RNA-seq, DNA-seq, Hi-C, etc.), thereby enabling multiomics analysis to bring deeper insights into the genetics of millions of species on the planet. Therefore, we now have access to thousands of organisms' genome sequences, including their annotations on the respective protein-coding sequences. Scientists all over the world are constantly working to understand gene expression and chromatin patterns across many cell types covering the full human genome. Due to this, bioinformatics has seen exponential growth in academic research and linear growth in the biomedical and bioinformatics industry, adding more than 10% additional jobs each year.

A minor in bioinformatics is available on both the Rose Hill and Lincoln Center campuses. Bioinformatics is an interdisciplinary field comprising mainly computer sciences and biological sciences. At Fordham, bioinformatics students focus on learning the key biological concepts as well as relevant algorithms and software tools for analyzing large-scale biological datasets. Some examples of the topics are genomics, proteomics, phylogenetics, systems biology, DNA microarray gene expression, next-generation sequencing (NGS) data analysis, genomic medicine, biomarkers for cancer and disease, drug discovery and design for disease and disorders, database and data mining, network form and function, and ESL (ethical, societal, and legal) issues.

For more information
Visit the Bioinformatics minor program webpage.