



Evgenia Giannopoulou, PhD

Associate Professor, Biological Sciences Department

Teaching Statement

I consider education a cornerstone in building the foundation for young scholars and future researchers. My own trajectory has been shaped by inspiring mentors, and I strive to serve as a similar guide for my students. As **full-time faculty** at New York City College of Technology, I teach in the

Biomedical Informatics Bachelor (BIB) degree program, offering courses such as Bioinformatics, Computational Genomics, Biomedical Data Analytics and the Biomedical Informatics Colloquium. These courses sit at the intersection of biology, statistics, computer science, and healthcare, disciplines that are rarely learned together, yet are essential for preparing our diverse student body. My students include pre-med candidates, aspiring graduate researchers, technicians-in-training, and transfer students, all of whom bring varied backgrounds and learning needs.

My teaching philosophy emphasizes cultivating “**bioinformatics literacy**”, the ability to think like scientists who bridge biology and computation while navigating the ethical dimensions of biomedical innovation. To achieve this, I design courses that **balance theory with practice**, giving students opportunities to analyze authentic biomedical datasets, develop computational models, and engage in collaborative problem-solving. For example, in Biomedical Data Analytics, I developed Python-based labs where students build predictive models from healthcare data. These labs mirror real-world challenges, and foster highly transferable skills, empowering students to see themselves as contributors to contemporary science rather than passive learners.

Building on this foundation, I have integrated **undergraduate research projects enhanced by AI-assisted tools** into my teaching. In redesigned coursework, students work in teams over a semester to analyze public health datasets (CDC, MIMIC-III, Kaggle), applying methods such as machine learning, natural language processing, and health data visualization. Importantly, they also learn to use AI-based coding assistants responsibly, for debugging, exploring new libraries, and accelerating iteration, while reflecting critically on the ethical implications of AI in biomedical research. This approach mirrors professional workflows, preparing students for graduate study, research labs, and industry roles where AI is rapidly becoming integral.

Because of the range of student preparation levels, I employ complementary strategies: hands-on labs, scaffolded online modules, collaborative projects, and guest speakers from both industry and academia. This **multimodal approach** ensures that students not only **gain technical fluency** but also **envision diverse career pathways**. Student evaluations consistently highlight the value of this approach, noting how it deepens their engagement and builds confidence in applying computational methods.

The impact of my teaching is reflected in the transformations I observe semester after semester: students who begin with little exposure to programming or statistics develop the ability to analyze complex datasets, articulate ethical considerations, and present results with professional rigor. Several have advanced to research internships, graduate programs, and careers in biomedical data science. Many specifically attribute their success to the combination of authentic data-driven projects, exposure to AI tools, and the inclusive environment cultivated in my classroom.

Ultimately, I aim to create an intellectually rigorous and inclusive learning environment where students connect **theory to practice**, and **science to society**. By integrating **AI, real-world data, and ethical inquiry into bioinformatics education**, I help students see themselves not only as learners but as emerging scholars equipped to shape the future of biomedical informatics.