

Biostatistics Essentials

The Graduate Certificate in Biostatistics Essentials provides the groundworks for developing new statistical methods, as well as applying existing techniques, to interpret data about the medical and life sciences. Biostatistics is important because it is used widely in the pharmaceutical industry, the health-care industry and in medical schools.

What kind of jobs do biostatisticians have?

Most biostatisticians work in a university, a healthcare field, a research institution or pharmaceutical firm. By using sophisticated software and statistical methods, they study the factors that affect human health. They also provide advice on how to use statistics to design and analyze studies.

What will I learn?

- Statistical techniques with emphasis on applications in health related sciences, summarizing and displaying data; basic probability and inference; Bayes' theorem and its application in diagnostic testing; estimation, confidence intervals, and hypothesis testing for means and proportions; contingency tables; regression and analysis of variance; logistic regression and survival analysis; basic epidemiologic tools; use of statistical software.
- Different sampling methods, simple random sampling, stratified sampling, ratio and regression estimates, cluster sampling, systematic sampling.
- Statistical methods and issues in the design of clinical trials and analysis of their data, which include clinical trial designs for phases 1-4, randomization principle and procedures, analysis of pharmacokinetic data for bioequivalence, multi-center trials, categorical data analysis, survival analysis, longitudinal data analysis, interim analysis, estimation of sample size and power, adjustment for multiplicity, evaluation of adverse events, and regulatory overview.
- Modeling time-to-event data in the presence of censoring and truncation, with emphasis on applications to the health sciences, including survival and hazard functions, censoring and truncation, parametric and nonparametric models for survival data, competing-risks, regression models including Cox proportional hazards model and time-dependent covariates, one and two sample tests, and use of appropriate statistical software for computations.

Why study Biostatistics Essentials at NJIT?

The certificate allows the students to focus and dig deep into this specific topic, and start applying your knowledge sooner. Earn this certificate on our NJIT Newark campus. And you'll learn from NJIT's distinguished professors and instructors.

Prerequisites

Applicants must have an undergraduate degree from an accredited institution with at least 12 credits in mathematics, including calculus. Students who do not meet these requirements may be admitted if they satisfy the university's requirements for admission. An undergraduate GPA of at least 3.0 on a 4.0 scale or equivalent is normally required.

Related Degree Programs

All credits for the Biostatistics Essentials Graduate Certificate relate in their entirety to NJIT MS in Biostatistics (<http://catalog.njit.edu/graduate/science-liberal-arts/mathematical-sciences/biostatistics-ms/>).

Gainful Employment Disclosure

Click here (<http://www.njit.edu/graduatestudies/sites/graduatestudies/files/gainfulemployment/biostatistics-cert-gainful-employment.html>) for the Gainful Employment Disclosure for this program

What are the Required Courses?

Code	Title	Credits
Core Courses		
MATH 663	Introduction to Biostatistics	3
MATH 662	Probability Distributions	3
Electives		
Select two of the following:		6
MATH 664	Methods for Statistical Consulting	
MATH 665	Statistical Inference	
MATH 654	Clinical Trials Design and Analysis	
MATH 659	Survival Analysis	