

BIostatISTICS

What is Biostatistics?

Biostatistics is the application of statistics to the sciences and specifically health. It is one of the five core disciplines of public health. Students pursuing a degree in biostatistics may end up in a career that:

- Helps with analysis of clinical trials in medicine
- Examines how genetic markers are related to disease or responsiveness to medication
- Creates estimates of how many people die from a specific illness or social phenomenon
- Determines trends in health related behaviors

What are examples of careers in Biostatistics?

A variety of careers exist for those interested in biostatistics. Below are just a sample of the professions related to biostatistics:

Local

- Data Analyst, Nebraska Department of Health and Human Services
- Project Manager, Bureau of Sociological Research
- Survey Statistician, Central Plains Research Data Center

National/International

- Statistician, Pfizer
- Demographer, Centers for Disease Control and Prevention
- Statistical Analyst, St. Jude Children's Research Hospital

Who might be interested in a Biostatistics career?

Students interested in biostatistics typically have strong backgrounds in mathematics, statistics, and research. If you want to know answers to the following types of questions, you might want to explore biostatistics some more:

- What genetic traits are associated with higher risks of cancer?
- How many teenagers use illicit drugs?
- Who is most likely to benefit from a specific medical treatment?
- How are stress and obesity related?
- What populations have the highest rates of undiagnosed diabetes?

Where can I get a degree in Biostatistics?

All schools of public health should have graduate degrees in biostatistics. Students should consult each school they plan to apply to in order to know what coursework will be required for admission. These requirements may vary by school. UNMC has the following programs available:

Master of Public Health (Biostatistics Concentration)

The following courses are required for admission:

- B or better in Statistics (CRIM 300, ECON 215, EDPS 459, SOCI 206, STAT 218)
- B or better in Differential Calculus (MATH 106)
- B or better in Integral Calculus (MATH 107)

Doctorate of Philosophy (PhD) in Biostatistics

Students pursuing a PhD in Biostatistics must first attain a master's degree in Biostatistics, Statistics, or a related field.

What other courses can I take to prepare for a Biostatistics program?

See our Pre-Public Health sheet for courses that will broadly prepare you for a public health graduate program. Beyond those, specific courses that are relevant to biostatistics include those below. Please consult an academic advisor and the Undergraduate Bulletin to discuss these classes before enrolling.

Additional Mathematics and Statistics courses

Bioinformatics: BIOS 237, 427, 428, 477

Biopsychology: PSYC 373, 458, 464, POLS 150

Computer Science: CSCE 101, 155T, 311

Genetics: BIOS 206 or AGRO 315

Research Ethics: SOCI 362

Research Methods: SOCI 205, PSYC 350, or CRIM 251

What can I do to explore Biostatistics?

- **Research:** Gain experience through a UCARE project or by working on any kind of research project on campus. Even if you aren't assisting in data analysis, getting a first-hand look at what it takes to develop and implement a research project is a great background for an undergraduate student interested in a career related to Biostatistics.
- **Career Information:** Find a professional who you can do an informational interview with in order to learn more about career paths in the field.
- **Organizations:** Join the Pre-Public Health Club to gain exposure to various career fields in public health. Consider joining a professional organization to stay up to date with current trends in the areas that most interest you. Student memberships are generally affordable.

How do I apply?

For admission to UNMC's MPH or PhD programs, students must apply through the centralized application process – SOPHAS. Information on SOPHAS can be found at www.sophas.org and on the UNMC admissions page at <http://unmc.edu/publichealth/admissions/index.html>.

Students can apply to start the MPH program in either the fall or spring semesters each year. The PhD program only admits students to the fall semester. Please see UNMC's admissions page for specific application dates.

The admissions committee reviews grade point average, letters of recommendation, knowledge of profession, service, and leadership experience. In addition to a GRE (or other acceptable entrance exam), students will need to provide a one page personal statement and a resume reflecting one or more years of work/volunteer history related to health and/or human services.

Where can I go for more information?

UNMC College of Public Health

Department of Biostatistics

<http://unmc.edu/publichealth/departments/biostatistics>

Associations of Schools and Programs of Public Health

<http://www.aspph.org/study/biostatistics>

American Statistical Association

<http://www.amstat.org>

Explore Health Careers

<http://explorehealthcareers.org>