

S55-5003/S80-5003 Foundations Of Public Health: Biostatistics

This course overview is being provided by the lead instructor and may be used for reference as you prepare for the Biostatistics proficiency exam. The exam is designed to measure your knowledge of the course domains and core competencies which are standard across sections of the course. Specific course content may vary by instructor, therefore course syllabi are not provided.

COURSE DOMAIN AND BOUNDARIES:

The purpose of this course is to introduce the basic principles and methods of biostatistics, providing a sound methodological foundation for public health and/or social work practice. This course will cover fundamental concepts and techniques of descriptive and inferential statistics with applications in health care, medicine, public health, social work, and epidemiology. Basic statistics, including probability, descriptive statistics, inferences for means and proportions, and general/generalized linear modeling methods are presented.

COURSE PEDAGOGICAL ELEMENTS:

Pedagogical elements common to all sections of this course include:

- Lecture
- Dialectic discussion
- Team-based problem solving
- Written multiple choice tests

COURSE COMPETENCIES:

- A. Biostatistics: Biostatistics is the development and application of statistical reasoning and methods in addressing, analyzing, and solving problems in public health, health care, and biomedical, clinical, and population-based research. Upon graduation a student with an MPH should be able to...
 - a. Understand the basic concepts of probability, variation, and inference.
 - b. Apply descriptive and inferential techniques according to the type of study design for answering a particular research or practice question.
 - c. Prepare clear and effective graphical and tabular summaries of basic statistical analysis.
- B. Communication and Informatics: The ability to collect, manage, organize and present information clearly and concisely to different audiences through interpersonal and technology-mediated channels to achieve specific objectives is a critical skill for 21st century public health professionals. Upon graduation a student with an MPH should be able to...
 - a. Understand how to capture, synthesize, communicate and disseminate ideas and data to diverse stakeholders to influence public health policy and practice.

READINGS:

Please note, these readings may vary across sections; this is a sample from the lead instructor's syllabus.

- Fischetti, Tony. 2015. Data Analysis with R. Packt Publishing.
- Dalgaard, Peter. 2008. Introductory Statistics with R. Springer.
- James, G., Witten, D., Hastie, T., Tibshirani, R. 2013. An Introduction to Statistical Learning with Applications in R. Springer.
- Salsburg, David. 2002. The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century. Holt Paperbacks.
- Kleinbaum, David G., Klein, Mitchel, (2010) *Logistic Regression: A Self-Learning Text* (3rd ed.). New York, NY: Springer.