

BIOSTATISTICS (BST)

BST 50196 INDIVIDUAL INVESTIGATION IN BIOSTATISTICS 1-3

Credit Hours

(Repeatable for maximum 6 credits) Individual graduate investigation or research in areas related to biostatistics.

Prerequisite: Graduate standing; and special approval.

Schedule Type: Individual Investigation

Contact Hours: 1-3 other

Grade Mode: Standard Letter-IP

BST 52019 BIOSTATISTICS IN PUBLIC HEALTH 3 Credit Hours

Provides students with an understanding of basic statistical methods in public health research, as well as the skills to perform and interpret basic statistical procedures. Students learn how to use statistical analysis software to analyze real data from public health-related studies. They then learn how to interpret the analysis and present the results to public health professionals and educated lay audiences. Includes lab component that enhances student awareness and informed usage of the statistical software SAS for public health analysis. Students learn how to input, read, store, export and modify data in SAS and be able to use common SAS procedures to analyze public health data and conduct independent SAS programming.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 60010 USING R IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 70010) Students learn the role of the computing software R for data analyses. The course covers the basics of R including how to organize and clean data and how to display data visually. Students understand how to perform descriptive and inferential statistics using R.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 60011 USING SAS IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 70011) Students learn the role of the computing software SAS for data analyses. The course covers the basics of SAS, including importing data, organizing and cleaning the data and using different procedures. Students understand how to perform descriptive and inferential statistics using SAS.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 60012 USING EXCEL IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 70012) An introduction to using Excel in the field of public health. Students learn the skills to analyze and present data, including using formulas, pivot tables, graphs and the data analysis toolpak.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 60191 VARIABLE CONTENT SEMINAR IN BIOSTATISTICS 1-3

Credit Hours

(Repeatable for credit) Seminar on current and important topics in biostatistics. Subject matter varies depending on the topic.

Prerequisite: Graduate standing.

Schedule Type: Seminar

Contact Hours: 1-3 other

Grade Mode: Standard Letter

BST 60192 APPLIED PRACTICE EXPERIENCE IN BIOSTATISTICS 3,6

Credit Hours

(Repeatable for credit) Observational and participation in public health activities of a public health agency, hospital or other approved organization. The student completes the field experience with joint supervision from the university and approved organization or agency.

Prerequisite: Graduate standing; and special approval.

Schedule Type: Practical Experience

Contact Hours: 9-18 other

Grade Mode: Satisfactory/Unsatisfactory-IP

BST 60195 SPECIAL TOPICS IN BIOSTATISTICS 1-3 Credit Hours

(Repeatable for a maximum of 6 credit hours) Special topics to sample new offerings on topics in biostatistics.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 1-3 lecture

Grade Mode: Standard Letter

BST 60292 APPLIED PRACTICE EXPERIENCE IN BIOSTATISTICS II 1

Credit Hour

Continuing enrollment for students participating in public health activities of a public health agency, hospital or other approved organization. Students complete the field experience with joint supervision from the university and an approved organization or agency.

Prerequisite: BST 60192; and graduate standing; and special approval.

Schedule Type: Practical Experience

Contact Hours: 15 other

Grade Mode: Satisfactory/Unsatisfactory

BST 62020 DATA MANAGEMENT AND LOGIC USING SAS® SOFTWARE

3 Credit Hours

(Slashed with BST 82020) This course introduces graduate students to SAS® software, reading external data into SAS software, use of SAS data step, basic SAS functions, logical data steps for data management, and different SAS procedures for creating summary reports, graphical displays, and conducting basic statistical analysis using the SAS software. SAS Lab sessions are designed to mimic real time challenges working with different kinds of data and learn how to meet such challenges. By the end of the course, students will achieve competency in proper and efficient use of SAS software.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 63012 SURVIVAL ANALYSIS IN PUBLIC HEALTH 3 Credit Hours

Introduction in survival analysis for graduate students in public health. Covers survival functions, hazard rates, types of censoring and truncation. Methods of focus include life tables, Kaplan-Meier plots, log-rank tests, Cox regression models and parametric survival models. Inference for recurrent event and competing risks models are also covered.

Prerequisite: BST 52019 and 63014; and graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 63013 EXPERIMENTAL DESIGNS IN PUBLIC HEALTH RESEARCH 3 Credit Hours

Introduces students to experimental research methods, in public health settings. First introduces a number of quasi-experimental and experimental study designs, then identifies a number of statistical methods that can be used to draw correct causal inferences from the study.

Prerequisite: BST 52019 and 63014; and graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 63014 APPLIED REGRESSION ANALYSIS OF PUBLIC HEALTH DATA 3 Credit Hours

(Slashed with BST 83014) Focuses on developing student proficiency in building and evaluating various regression models for public health studies. Topics covered include exploratory and descriptive methods, simple and multiple linear regression models, predictor selection, binary and multinomial logistic regression models, survival analysis, repeated measures and generalized linear models.

Prerequisite: BST 52019; and graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 63015 CATEGORICAL DATA ANALYSIS OF PUBLIC HEALTH DATA 3 Credit Hours

(Slashed with BST 83015) Provides an applied introduction to the most important methods for analyzing categorical data in public health. Topics covered include contingency tables, logistic regression, generalized linear models, modeling matched pairs and clustered responses.

Prerequisite: BST 52019 and EPI 52017; and graduate standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 70010 USING R IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 60010) Students learn the role of the computing software R for data analyses. The course covers the basics of R including how to organize and clean data and how to display data visually. Students understand how to perform descriptive and inferential statistics using R.

Prerequisite: Doctoral standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 70011 USING SAS IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 60011) Students learn the role of the computing software SAS for data analyses. The course covers the basics of SAS, including importing data, organizing and cleaning the data and using different procedures. Students understand how to perform descriptive and inferential statistics using SAS.

Prerequisite: Doctoral standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 70012 USING EXCEL IN PUBLIC HEALTH 1 Credit Hour

(Slashed with BST 60012) An introduction to using Excel in the field of public health. Students learn the skills to analyze and present data, including using formulas, pivot tables, graphs and the data analysis toolpak.

Prerequisite: Doctoral standing.

Schedule Type: Lecture

Contact Hours: 1 lecture

Grade Mode: Standard Letter

BST 73011 MULTIVARIATE ANALYSIS IN PUBLIC HEALTH 3 Credit Hours

Multivariate statistical methods are designed to evaluate more than one variable at a time. An application-oriented introduction to essential multivariate statistical methods used in public health. Topics covered include matrix theory, data screening and preliminary analyses, multivariate normal distributions, multivariate versions of the general linear model (MANOVA, multivariate multiple regression, MANCOVA), discrimination and classification, canonical correlation analysis, and methods of analyzing covariance and correlation structures (principal components and factor analysis). Also introduces and explores methods of handling missing data.

Prerequisite: BST 52019; and doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 82020 DATA MANAGEMENT AND LOGIC USING SAS® SOFTWARE 3 Credit Hours

(Slashed with BST 62020) This course introduces graduate students to SAS® software, reading external data into SAS software, use of SAS data step, basic SAS functions, logical data steps for data management, and different SAS procedures for creating summary reports, graphical displays, and conducting basic statistical analysis using the SAS software. SAS Lab sessions are designed to mimic real time challenges working with different kinds of data and learn how to meet such challenges. By the end of the course, students will achieve competency in proper and efficient use of SAS software.

Prerequisite: Doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 83012 SURVIVAL ANALYSIS IN PUBLIC HEALTH 3 Credit Hours

Covers survival functions, hazard rates, types of censoring and truncation. Methods of focus include life tables, Kaplan-Meier plots, log-rank tests, Cox regression models and parametric survival models. Inference for recurrent event and competing risks models are also covered.

Prerequisite: BST 52019; and BST 63014 or 83014; and doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 83013 EXPERIMENTAL DESIGNS IN PUBLIC HEALTH RESEARCH**3 Credit Hours**

Designed to introduce students to experimental research methods, in public health settings. First introduces a number of quasi-experimental and experimental study designs, then identifies a number of statistical methods that can be used to draw correct causal inferences from the study. Students are expected to develop two research proposals, first using quasi-experimental then an experimental design and develop a statistical analysis plan for each study.

Prerequisite: BST 52019; and BST 63014 or 83014; and doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 83014 APPLIED REGRESSION ANALYSIS OF PUBLIC HEALTH**DATA 3 Credit Hours**

(Slashed with BST 63014) Focuses on developing student proficiency in building and evaluating various regression models for public health studies. Topics covered include exploratory and descriptive methods, simple and multiple linear regression models, predictor selection, binary and multinomial logistic regression models, survival analysis, repeated measures and generalized linear models.

Prerequisite: BST 52019; and doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

BST 83015 CATEGORICAL DATA ANALYSIS OF PUBLIC HEALTH DATA**3 Credit Hours**

(Slashed with BST 63015) Provides an applied introduction to the most important methods for analyzing categorical data in public health. Topics covered include contingency tables, logistic regression, generalized linear models, modeling matched pairs, mixed models for categorical data and clustered responses.

Prerequisite: BST 52019 and EPI 52017; and doctoral standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter