Biostatistics (BST)

BST 222 — Biostatistics: Survival Analysis (4 units)
Course Description: Basic statistical principles of clinical designs, including bias, randomization, blocking, and masking. Practical applications of widely-used designs, including dose-finding, comparative and cluster randomization designs. Advanced statistical procedures for analysis of data collected in clinical trials.
Prerequisite(s): BST 223 or STA 223, or consent of instructor.
Learning Activities: Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).
Cross Listing: STA 222.
Grade Mode: Letter.

BST 225 — Clinical Trials (4 units)
Course Description: Basic statistical principles of clinical designs, including bias, randomization, blocking, and masking. Practical applications of widely-used designs, including dose-finding, comparative and cluster randomization designs. Advanced statistical procedures for analysis of data collected in clinical trials.
Prerequisite(s): BST 223 or STA 223, or consent of instructor.
Learning Activities: Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).
Cross Listing: STA 225.
Grade Mode: Letter.

BST 226 — Statistical Methods for Bioinformatics (4 units)
Course Description: Standard and advanced statistical methodology, theory, algorithms, and applications relevant to the analysis of -omics data.
Prerequisite(s): BST 131C or consent of instructor; data analysis experience recommended.
Learning Activities: Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).
Cross Listing: STA 226.
Grade Mode: Letter.

BST 227 — Machine Learning in Genomics (4 units)
Course Description: Emerging problems in molecular biology and current machine learning-based solutions to those problem. How deep learning, kernel methods, graphical models, feature selection, non-parametric models and other techniques can be applied to application areas such as gene editing, gene network inference and analysis, chromatin state inference, cancer genomics and single cell genomics.
Prerequisite(s): STA 208 or ECS 171; or consent of instructor.
Learning Activities: Lecture/Discussion 3 hour(s), Project.
Grade Mode: Letter.

BST 252 — Advanced Topics in Biostatistics (4 units)
Course Description: Biostatistical methods and models selected from the following: genetics, bioinformatics and genomics; longitudinal or functional data; clinical trials and experimental design; analysis of environmental data; dose-response, nutrition and toxicology; survival analysis; observational studies and epidemiology; computer-intensive or Bayesian methods in biostatistics.
Prerequisite(s): BST 222; BST 223.
Learning Activities: Lecture 3 hour(s), Discussion/Laboratory 1 hour(s).
Repeat Credit: May be repeated when topic differs with consent of advisor.
Cross Listing: STA 252.
Grade Mode: Letter.

BST 290 — Seminar in Biostatistics (1 unit)
Course Description: Seminar on advanced topics in the field of biostatistics. Presented by members of the Biostatistics Graduate Group and other guest speakers.
Learning Activities: Seminar 1 hour(s).
Enrollment Restriction(s): Restricted to graduate standing.
Repeat Credit: May be repeated 12 time(s).
Grade Mode: Satisfactory/Unsatisfactory only.

BST 298 — Directed Group Study (1-5 units)
Course Description: Special topics in Biostatistics appropriate for group study at the graduate level.
Learning Activities: Variable 3-15 hour(s).
Repeat Credit: May be repeated.
Grade Mode: Letter.
**BST 299 — Special Study for Biostat Graduate Students**
(1-12 units)

*Course Description:* Special topics in Biostatistics appropriate for directed individual study on advanced topics not otherwise covered in the Biostatistics curriculum.

*Learning Activities:* Variable 3-36 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.

**BST 299D — Dissertation Research**
(1-12 units)

*Course Description:* Research in Biostatistics under the supervision of major professor.

*Prerequisite(s):* Consent of instructor; advancement to Candidacy for Ph.D.

*Learning Activities:* Variable 3-36 hour(s).

*Repeat Credit:* May be repeated.

*Grade Mode:* Satisfactory/Unsatisfactory only.