**Biostatistics (BST)**

**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.