

## **B.S. in Statistics - Computational Statistics Option (effective Fall 13)**

Recommended for students interested in statistical computing, programming, and database management

### **Preparatory Subject Matter (30-31 units)**

- MAT 21A-B-C-D Calculus
- MAT 22A Linear Algebra
- ECS 30 Introduction to Programming
- ECS 40 Introduction to Software Development
- Any one introductory statistics course except STA 10

### **Depth Subject Matter (52 units)**

- STA 106 Analysis of Variance
- STA 108 Regression Analysis
- STA 141 Statistical Computing *or* STA 141A Fundamentals of Statistical Data Science
- STA 131A-B Intro to Probability and Mathematical Statistics

### **Two courses from:**

- STA 104 Nonparametric Statistics
- STA 135 Multivariate Data Analysis
- STA 137 Applied time Series Analysis
- STA 138 Analysis of Categorical Data
- STA 144 Sampling Theory of Surveys
- STA 145 Bayesian Statistical Inference
- STA 160 Practice in Statistical Data Science

### **Two courses on Programming, Data Management, and Data Technology:**

- ECS 130 Scientific Computation or 145 Scripting Languages
- ECS 165A Database Systems or 166 Scientific Database Management

### **Two courses on Scientific Computational Algorithm and Visualization from:**

- ECS 122A Algorithm Design and Analysis
- ECS 129 Computational Structural bioinformatics
- ECS 140A Programming Language
- ECS 158 Programming on Parallel Architectures
- ECS 163 Information Interfaces
- STA 141B Data & Web Technologies for Data Analysis
- STA 141C Big Data & High Performance Statistical Computing

### **Two courses from:**

- MAT 124 Mathematical Biology
- MAT 128A Numerical Analysis
- MAT 128B Numerical Analysis in Solution of Equations
- MAT 129 Fourier Analysis
- MAT 145 Combinatorics
- MAT 148 Discrete Mathematics
- MAT 160 Math Foundations of Database Theory, Design and Performance
- MAT 165 Mathematics and Computers
- MAT 167 Applied Linear Algebra
- MAT 168 Optimization

### **NOTES:**

- This major has many prerequisite courses for ECS & MAT (for example ECS 60) that are not included in the actual major. Please check the General Catalog to confirm that all prerequisites have been met.