

**Department:** Statistics

**Course No:** STAT 261Q

**Title:** Statistical Computing

**Credits:** 3

**Contact :** Dipak K. Dey

**WQ:** Q

**Catalog Copy :** Second semester. Four credits. Prerequisite: STAT 220 or STAT 230. Recommended preparation: An applied statistics course. Open only with consent of instructor. Introduction to computing for statistical problems; obtaining features of distributions, fitting models and implementing inference (obtaining confidence intervals and running hypothesis tests); simulation-based approaches and basic numerical methods. One hour per week devoted to computing and programming skills.

**Course Information :**

A. The objectives in this course to introduce the student to the theory and methods used in the area of statistical computing. The students learn to use statistical software and write programs to implement data analyses that require intensive computing.

B. Students have weekly homework that includes reading from a textbook and solving problems. There is one mid-term exam and a final exam.

C. The topics covered in this course include fitting models statistical computing in the area of finance and bioinformatics. Modern statistical computing methods like bootstrap are covered as well.

**Q Criteria :** It includes mathematics and statistics above the basic algebra level as an integral part which is used throughout the course. The course includes use of basic algebraic concepts such as: formulas and functions, linear and quadratic equations and their graphs, systems of equations, polynomials, fractional expressions, exponents, powers and roots, problem solving and word problems. The course requires the student to understand and carry out actual mathematical and statistical manipulations, and relate the materials to whatever data might be provided in order to draw conclusions.

**Role of Grad Students:** Graduate students assist the instructor in grading homework assignments. In the teaching lab the graduate student help the students to use statistical software used in this course.