

DATA - DATA SCIENCE AND ANALYTICS

DATA100 Elementary Statistics and Probability (3 Credits)

Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

Prerequisite: MATH110, MATH112, MATH113, or MATH115; or permission of CMNS-Mathematics department; or must have math eligibility of STAT100 or higher and math eligibility is based on the Math Placement Exam or the successful completion of Math 003 with appropriate eligibility.

Restriction: Must not have completed MATH111; or must not have completed any STAT course with a prerequisite of MATH141. Cross-listed with: STAT100.

Credit Only Granted for: DATA100 or STAT100.

DATA110 Applications of R for Data Science (1 Credit)

Intended to prepare students for subsequent courses requiring computation with R, providing powerful and easy to use tools for statistical data analysis. Covers basics of R and R Studio including file handling, data simulation, graphical displays, vector and function operations, probability distributions, and inferential techniques for data analysis.

Prerequisite: DATA100, STAT100, or MATH135; or any 400-level STAT course. Cross-listed with: STAT110.

Credit Only Granted for: STAT110 or DATA110.

DATA120 Python Programming for Data Science (1 Credit)

An introduction to programming in Python language, using Jupyter Notebooks and Python scripts. Covers variables, conditionals, loops, functions, lists, strings, tuples, sets, dictionaries, files and visualization.

Prerequisite: STAT100, MATH135, or any 400-level STAT course.

DATA400 Applied Probability and Statistics I (3 Credits)

Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

Prerequisite: 1 course with a minimum grade of C- from (MATH131, MATH141); or students who have taken courses with comparable content may contact the department. Cross-listed with: STAT400.

Credit Only Granted for: DATA400, ENEE324, or STAT400.

Additional Information: Not acceptable toward graduate degrees in MATH/STAT/AMSC.