SURV400 Fundamentals of Survey and Data Science (3 Credits)
The course introduces the student to a set of principles of survey and
data science that are the basis of standard practices in these fields.
The course exposes the student to key terminology and concepts of
collecting and analyzing data from surveys and other data sources to
gain insights and to test hypotheses about the nature of human and
social behavior and interaction. It will also present a framework that will
allow the student to evaluate the influence of different error sources on
the quality of data.
Prerequisite: STAT100; or permission of BSOS-Joint Program in Survey
Methodology department.
Restriction: Course open to SURV certificate students, SURV Advanced
Special Students, and SURV undergraduate minors. Graduate students
from other departments may enroll with permission from the department.
Credit Only Granted for: SURV699M or SURV400.
Formerly: SURV699M.

SURV410 Introduction to Probability Theory (3 Credits)
Probability and its properties. Random variables and distribution
functions in one and several dimensions. Moments. Characteristic
functions. Limit theorems.
Prerequisite: MATH240, MATH341, or MATH461; and (MATH241 or
Credit Only Granted for: STAT410 or SURV410.

SURV420 Theory and Methods of Statistics (3 Credits)
Point estimation, sufficiency, completeness, Cramer-Rao inequality,
maximum likelihood. Confidence intervals for parameters of normal
distribution. Hypothesis testing, most powerful tests, likelihood ratio
tests. Chi-square tests, analysis of variance, regression, correlation.
Nonparametric methods.
Prerequisite: SURV410 or STAT410. Cross-listed with STAT420.
Credit Only Granted for: STAT420 or SURV420.

SURV430 Fundamentals of Questionnaire Design (3 Credits)
Introduction to the scientific literature on the design, testing and
evaluation of survey questionnaires, together with hands-on application
of the methods discussed in class.
Restriction: Permission of BSOS-Joint Program in Survey Methodology
department.
Credit Only Granted for: SURV430 or SURV630.

SURV440 Sampling Theory (3 Credits)
Simple random sampling, sampling for proportions, estimation of sample
size, sampling with varying probabilities of selection, stratification,
systematic selection, cluster sampling, double sampling, and sequential
sampling.
Prerequisite: STAT401 or STAT420.
Credit Only Granted for: STAT440 or SURV440.