Syllabus

Course: STA 382 – Introduction to Sampling Methods
Instructor: Dr. Scott Richter, 107 Petty, sjricht2@uncg.edu.

For Whom Planned: This course is planned for undergraduate students who wish to explore methods of statistical sampling and survey design.

Catalog Description: Designing survey instruments; estimation of population mean, total, and proportion using simple random, stratified, systematic, and cluster sampling; other sampling techniques such as pps sampling and randomized response methods. Prerequisites: STA 291 or permission of instructor.

Required Texts/Readings/References: *Elementary Survey Sampling*, 6th edition by Schaffer, Mendenhall & Ott, 2006.

Student Learning Outcomes:

Upon completion of the course, students should be able to:

- Define technical terms related to sampling;
- Recognize the advantages of a sample survey over complete enumeration;
- Identify and use principles of simple random sampling, stratified random sampling, systematic sampling and cluster sampling for estimation of population mean, total and proportion:
- Differentiate between ratio estimation and regression estimation, and use these for estimation of a population total and population mean;
- Recognize and plan a multistage sample;
- Effectively deal with non-sampling error and suggest ways to reduce the non-response rate.

Evaluation Methods and Guidelines for Assignments: Students will be evaluated using two exams, graded homework assignments, and a semester project.

Exams
There will be two exams during the semester.

Project All students will complete a graded sampling project. Each project, done individually or by a small team of at most two students, will address a different estimation problem where sampling is the logical tool to use. Any kind of sampling problem can be considered, provided the sample can be designed, selected, the measurements taken, and estimation (point estimates and their estimated variances) completed before project due date. The grade for the project will be determined by the quality of the students' application of sound statistical principles. All students in a project team will receive the team's grade. The project will consist of the following two written/oral reports:

1. Project Plan --- A short description of the research question(s), target population, the sample design, and estimation strategy for the project (due before Spring Break); and

2. Project Findings --- A short description of the sampling and collection of the data, along with a summary of the findings (due the last week of class).

Assignments and class participation
Practice exercises from the text and supplementary materials will be assigned regularly. These are designed to provide practice and to help synthesize readings, class discussions, and lectures. These exercises will not be collected, but periodically students will be asked to present solutions to selected exercises. The class participation grade will be based on: 1) the quality of the presented solutions; and 2) presenting the required number of solutions throughout the semester (students will all be expected to present the same number of times during the semester).
Additional exercises will also be assigned as "Assignments" and are to be submitted to be graded. The specific exercises and due dates for these Assignments will be announced throughout the semester.

****Late assignments will not generally be accepted without prior arrangement, and will receive a score of zero.***

Students are expected to do their own work and abide by the UNCG Academic Integrity Policy (http://sa.uncg.edu/handbook/academic-integrity-policy/) on all submitted work.

The overall course average will be calculated as follows:

Test 1	20%
Test 2	20%
Assignments	30%
Participation	10%
Project	20%
Total	100%

The course grade will be determined according to the following scale:

Grading scale

Average	Grade
90 or above	A
80-89	B
70-79	C
60-69	D
below 60	F

Attendance: Students are expected to attend all classes, and are responsible for any information missed when not present in class. Students who miss more than three classes may be dropped from the course.