

Salisbury University Department of Mathematical Sciences

MATH 313 : Survey Design and Sampling
Syllabus (Tentative)

Description: Peculiarities of sampling and inference commonly encountered in business, the social sciences, the health sciences, environmental studies, natural resources management and other areas with emphasis on the application of survey sampling rather than on the underlying statistical theory of survey design and analysis. 4 Hours Credit: Meets four hours per week. Meets General Education IVB or IVC.

Prerequisites: C or better in MATH 155 or MATH 213 or MATH 216 or equivalent.

Intended Audience: Math majors pursuing statistics concentration. Students in Social Science, Natural Science, Business or Nursing who are faced with conducting surveys or critically reading the works of others based upon surveys.

Objective: To study basic principles for constructing surveys, so that one can determine how to get useful information from a survey at low cost.

Textbooks: *Elementary Survey Sampling*, by Scheaffer, Mendenhall and Ott; Duxbury, 7th edition, 2012.

Technology: Minitab will be used extensively throughout the course. Two major projects will be assigned which will require the use of Minitab and a full written report.

Topic	Weeks
Chapters 1 & 2: Introduction and Review	1
Chapter 3: Elements of the Sampling Problem	1
Chapter 4: Simple Random Sampling	2
Chapter 5: Stratified Random Sampling	2
Chapter 6: Ratio, Regression & Difference Estimation	2
Chapter 7: Systematic Sampling	1
Chapter 8: Cluster Sampling	1
Chapter 9: Two-stage Cluster Sampling	1
Chapter 10: Estimating the Population Size	1
Chapter 11: Supplemental Topics	1
Tests	1
Total	14

Evaluation

Tests	40%
Homework/Quizzes	20%
Projects	20%
Final Exam	20%

- Clear descriptions of thought processes, evidence of critical thinking, and effective communication must be demonstrated in written work.
- **Writing Across the Curriculum:** Students will be expected to communicate mathematics and mathematical ideas effectively in speech and writing. At the University Writing Center, trained consultants are ready to help you at any stage of the writing process. In addition to the important writing instruction that occurs in the classroom and during professors' office hours, the Center offers another site for learning about writing. **All students are encouraged to make use of these important services.**

- **NOTE:** Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.