

COURSE IMPLEMENTATION DATE:	Jan, 1995
COURSE REVISED IMPLEMENTATION DATE:	Sept, 2004
COURSE TO BE REVIEWED:	Sept, 2008
(Four years after implementation date)	(MMMM YY format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary
- see course syllabus available from instructor

FACULTY/DEPARTMENT:	Science, Health & Human Services / Mathematics & Statistics	
MATH 350		3
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS
	Survey Sampling	
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

This course introduces the theory and practice of survey sampling. The basic theory of simple random sampling, stratified random sampling, ratio estimation, cluster sampling and systematic sampling is covered, together with the more specialized topics of questionnaire design, estimation of population size and the random response method for sensitive questions. Students are expected to produce a report resulting from analyzing data collected in a survey which they have designed and conducted, and which illustrates at least one of the sample designs discussed during the course.

PREREQUISITES: **MATH 106 WITH AT LEAST A B, OR MATH 270**
COREQUISITES:

SYNONYMOUS COURSE(S)	SERVICE COURSE TO:
(a) Replaces: _____ (Course #)	_____
(b) Cannot take: _____ for further credit. (Course #)	_____
	(Department/Program)
	(Department/Program)

TOTAL HOURS PER TERM: 60	TRAINING DAY-BASED INSTRUCTION
STRUCTURE OF HOURS:	LENGTH OF COURSE: _____
Lectures: 30 Hrs	HOURS PER DAY: _____
Seminar: _____ Hrs	
Laboratory: 30 Hrs	
Field Experience: _____ Hrs	
Student Directed Learning: _____ Hrs	
Other (Specify): _____ Hrs	

MAXIMUM ENROLLMENT:	36
EXPECTED FREQUENCY OF COURSE OFFERINGS:	every second Fall semester
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	<input type="checkbox"/> Yes <input type="checkbox"/> No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

AUTHORIZATION SIGNATURES:

Course Designer(s): _____ Math Department	Chairperson: _____ Peter Mulhern (<i>Curriculum Committee</i>)
Department Head: _____ Gillian Mimmack	Dean: _____ Jackie Snodgrass
PAC Approval in Principle Date: _____	PAC Final Approval Date: November 26, 2003

COURSE NAME/NUMBER**LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:**

The successful student will be able to:

1. design a questionnaire, conduct a small survey, analyze the sample data and complete a report on the findings;
2. estimate population means, totals and proportions in terms of confidence intervals calculated from simple random samples taken from finite populations or from infinite populations;
3. estimate population means, totals and proportions from stratified random samples, select appropriate sample sizes and allocate the sample optimally;
4. understand and apply ratio estimators in the contexts of simple and stratified random sampling;
5. estimate population means, totals and proportions and calculate bounds on the error of estimation in the context of cluster sampling, where cluster sizes may be equal or proportional;
6. estimate population sizes using direct sampling and inverse sampling;
7. derive some results for the random response model for conducting surveys on sensitive issues.

METHODS:

Lectures, discussions in class, use of statistical software in computing labs.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check :) Yes No

METHODS OF OBTAINING PLAR:

Course challenge.

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

The textbook is chosen by a departmental curriculum committee. Recent texts used:

Text: Scheaffer, Mendenhall and Ott. *Elementary Survey Sampling*. 5th edition. Duxbury.

Reference: Cochran. *Sampling Techniques*. 3rd edition. Wiley.

SUPPLIES / MATERIALS:**STUDENT EVALUATION:**

[An example of student evaluation for this course might be:]

Project	15%
Assignments	15%
In-class tests	30%
Final examination	40%

Student must obtain at least 40% on the final exam in order to pass this course.

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Elements of the sampling problem: The design of the survey sample, sources of errors in surveys, non-response, designing a questionnaire, planning a survey.

Simple random sampling: Variance, correction for finite populations, standard error, random sampling with replacement, estimating population means, totals and proportions, selecting samples of appropriate sizes.

Stratified random sampling: Estimating population means, totals and proportions, selecting the sample size, allocation of the sample and the optimal rule, post-stratification.

Ratio estimator: Variance, correlation coefficient, ratio estimation in simple random sampling, selecting the sample size, ratio

estimation in stratified random sampling, regression estimation.

Systematic sampling: Methods of obtaining systematic samples, estimation of population means, totals and proportions, calculating appropriate sample sizes.

Cluster sampling: Estimating population means, totals and proportions when the clusters are of the same size, cluster sampling combined with stratification, cluster sampling with probabilities proportional to size.

Estimating the population size: Estimation of population sizes using direct sampling and inverse sampling.

Supplemental topics: Two-stage cluster sampling, random-response model.