



Course Specifications

Course Title:	Sampling Techniques
Course Code:	Stat 331
Program:	Bachelor Degree in Actuarial and Financial Mathematics
Department:	Department of Mathematics
College:	College of Science
Institution:	King Saud University

Table of Contents

A. Course Identification	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	3
C. Course Content	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods	4
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities	5
1. Learning Resources	6
2. Facilities Required.....	6
G. Course Quality Evaluation	6
H. Specification Approval Data	6

A. Course Identification

1. Credit hours:			
2. Course type			
a.	University <input checked="" type="checkbox"/>	College <input type="checkbox"/>	Department <input type="checkbox"/>
b.	Required <input type="checkbox"/>	Elective <input type="checkbox"/>	Others <input type="checkbox"/>
3. Level/year at which this course is offered: Level 6			
4. Pre-requisites for this course (if any): STAT 223			
5. Co-requisites for this course (if any):			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	
3	Tutorial	30
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

<p>1. Course Description: This course is meant to expose the students to the techniques of drawing representative samples from various populations and then preparing them on the mathematical formulations of estimating the population parameters based on the sample data.</p>
<p>2. Course Main Objective: Students would also be exposed to the real life applications of sampling techniques and estimation of parameters. Determination of sample size and selection of sample, Simple random sampling, Stratified random sampling, Cluster sampling, Systematic sampling.</p>

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	Knowledge and Understanding	

CLOs		Aligned PLOs
1.1	Understand the basic principles underlying survey design and estimation	K4
1.2	Understand the methods for designing and selecting a sample from a population	K2
1.3	How to estimate finite population parameters, e.g. totals and means, for some standard sampling schemes.	K3
1.4	Understand the basic principles underlying survey design and estimation	K4
2	Skills:	
2.1	Ability to use R.	S2
2.2	Applying the right statistical methods and techniques to answer given questions and data.	S4
2.3	Statistically interpreting results and drawing conclusion.	S2
3	Values:	
3.1	Ability to write professional statistical report.	V2
3.2	Using advance and professional statistical software.	V3
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Probability sampling	5
2	Simple Random Sampling: Estimation of Means and Totals	8
3	Sample size determination	6
4	Missing values	2
5	Proportions, Percentages, and Counts	8
6	Systematic sampling	8
7	Stratification	8
Total		

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Describe the fundamental concepts of Sampling.	Lectures and class discussions	Exam
1.2	Apply the fundamental concepts of Error sampling and its consequences	Lectures and class discussions	Exam
1.3	Describe the fundamental concepts of Unbiasedness and margin of error.	Lectures and class discussions	Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.4	Apply the fundamental concepts of Stratification	Lectures and class discussions	Exam
2.0	Skills		
2.1	The ability of applying Sampling	Examples and problems to be solved during the lecture	Exam
2.2	The ability of using sampling to estimate parameters	Examples and problems to be solved during the lecture	Exam
2.3	The ability to apply use R to solve problems	Examples and problems to be solved during the lecture	Exam
3.0	Values		
3.1	Ability to write professional statistical report.	C2	Ability to write professional statistical report.
3.2	Using advance and professional statistical software.	C3	Using advance and professional statistical software.
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Mid 1 exam	8	25
2	Mid 2 exam	11	25
3	Final exam	14	40
4			
5			
6			
7			
8			

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	SAMPLING METHODOLOGIES WITH APPLICATIONS, Poduri S.R.S. Rao. CHAPMAN & HALL/CRC
Essential References Materials	Elementary survey sampling, Scheaffer, R. L. and Mendenhall, W. (1979)
Electronic Materials	Statistical sampling techniques, Cochran, W., Published by John wiley & Sons, Inc. (1977).
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	
Technology Resources (AV, data show, Smart Board, software, etc.)	
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	