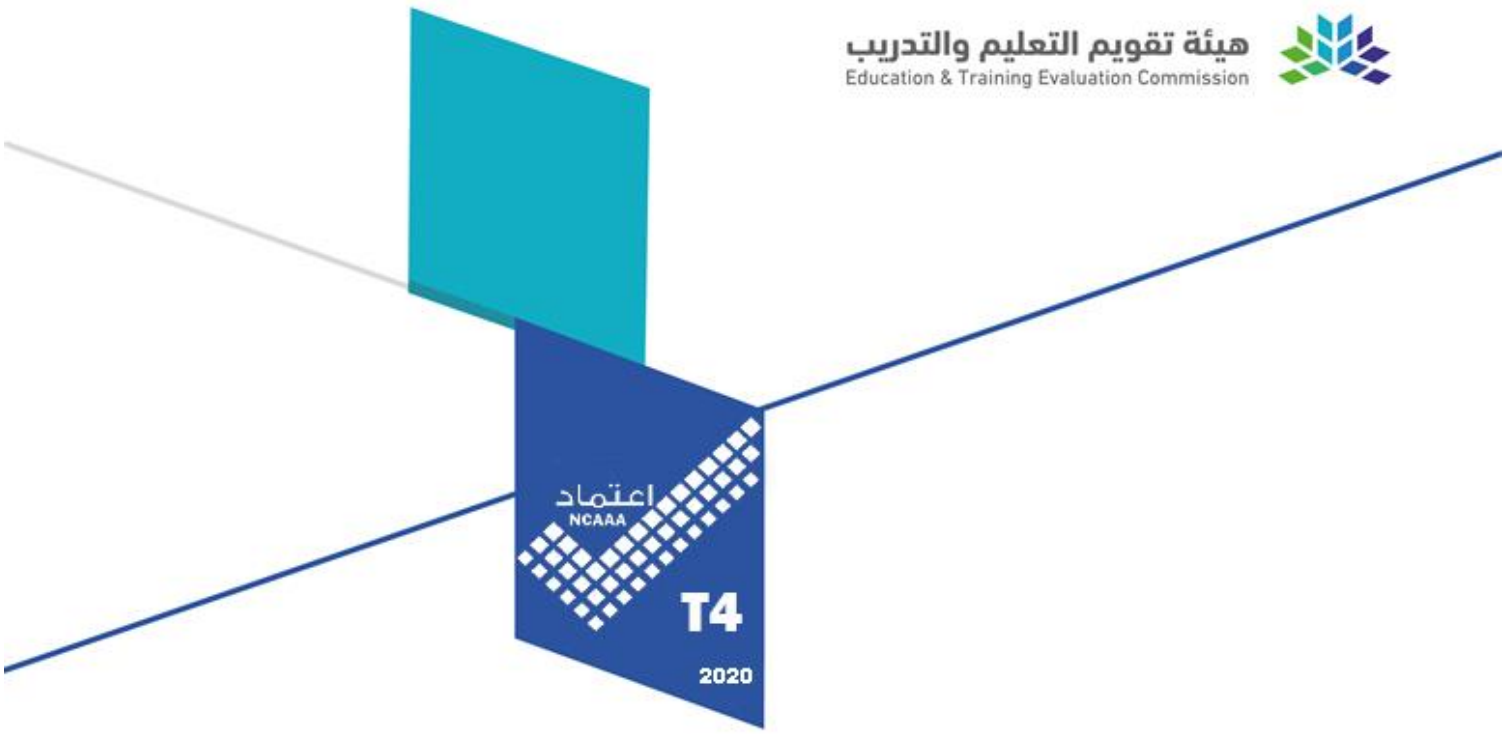
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Sampling Techniques	
Course Code:	STAT 331	
Program:	Statistics	
Department:	Statistics and Operations Research	
College:	Science	
Institution:	King Saud University	

A. Course Identification

1. Credit hours:
2. Course type **a.** University ☐ College ☐ Department ■ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: **Level 6 / Year 3**
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

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. The 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.

2. Course Main Objective

The objectives of this course are:

- Understand the basic ideas of sampling from an applied perspective and to provide experience with real-life problems.
- Understand some basic level topics for students who wish to pursue research in Sampling

Increase the skill in the statistical software R

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Understand the basic principles of underlying survey design and estimation	K4
1.2	Understand the methods for designing and selecting a sample from a population	K2
1.3	Knowing how to estimate finite population parameters, e.g. totals and means, for some standard sampling schemes.	K3
1...		
2	**Skills :**	
2.1	Ability to use R programming.	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
2...		
3	**Values:**	
3.1	Work independently and as part of a team.	V1
3.2	Manage resources and time	V3
3.3	Communicate results of work to others	V2
3...	Critical thinking	

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
8	Proportion allocation and Neyman allocation	8
9	Cluster Sampling	7
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	Knowledge of essential steps in probability sampling.	Lecture	Assignment+ Written Exam
1.2	Learning statistical methods and techniques in sampling.	Lecture	Assignment+ Written Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.3	Learning how to distinguish between different statistical methods and techniques.	Lecture	Assignment+ Written Exam
2.0	**Skills**		
2.1	Ability to efficiently use survey methods.	Lecture+ Laboratory	Assignment+ Written Exam
2.2	Applying the right sampling techniques to answer given questions and data.	Lecture+ Laboratory	Assignment+ Written Exam
2.3	Statistically interpreting results and drawing conclusion.	Lecture+ Laboratory	Assignment+ Written Exam
3.0	**Values**		
3.1	Work independently and as part of a team.	Lecture+ Laboratory	Assignment+ Written Exam
3.2	Manage resources and time	Lecture+ Laboratory	Assignment+ Written Exam
3.3	Communicate results of work to others	Lecture+ Laboratory	Assignment+ Written Exam

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Written test	5	35 %
2	Quiz	7	15 %
3	Practice test	9	10 %
4	Final Exam	11	40%
5			
6			
7			
8			

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

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	**1/SAMPLING METHODOLOGIES WITH APPLICATIONS**, **Poduri S.R.S. Rao.** CHAPMAN & HALL/CRC 2/Singh, Ravindra, and Naurang Singh Mangat. *Elements of survey sampling*. Vol. 15. Springer Science & Business Media, 2013.
Essential References Materials	
Electronic Materials	
Other Learning Materials	