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|---|---|---|
| **Course Name:** **Sampling Techniques-I** | | |
| **Course Code:** STAT-301 | **Course Type :** Elective | **Course Credits:** 3 |
| **Class Timings: S-420** 11:00 to 12:15 | **Section:** A | **Office Hours: S-418/ Online** Monday, Wednesday, Friday- 10:00 to 11:00 a.m. |
| **Instructor Name:** Dr. Nadia Mushtaq | | |

## Mode of teaching:

• In case of blended mode, students with even and odd roll numbers will rotate weekly as per academic calendar provided by university. There will be on-campus lectures accompanied with video lectures & notes on Moodle/ regular Zoom sessions.
• In case of in-person (on campus) classes, there will be in class lectures.
• In case of fully online teaching, regular Zoom classes will be conducted along with recorded video lectures and lecture notes uploaded on Moodle.
• Note: Assessments' criteria will be same for all modes of teaching.
Quizzes, mid-term exam & final exam will be conducted on campus in case of in-person & blended classes. Otherwise for online mode, all assessments will be conducted online on Moodle.

**Instructor Contact Details**
Email: nadiamushtaq@fccollege.edu.pk
Office Hours: Monday, Wednesday, Friday- 10:00 to 11:00
Guidelines for contacting instructor:

- Meet online if online.
- If in-person make an appointment via email

**Course Description**:
Pre-requisites: STAT-201

Students are expected to read wider than the lecture material as part of their individual study. Students are required to apply themselves diligently to the course of study and to prepare assignments and project will have to be completed on time.

**Technology Requirements:**

- Students need to have a computer/ laptop/ smartphone/ calculator

**Technology Etiquettes**

- Students are recommended to log in at least 10 minutes before the start of the session to do the necessary checks, specifically for students
- Be sure to name yourself for your slot on the screen. It will make it easy to get a report of the students' attendance. If your slot carries a different name, to rename: click 3 dots near your video window OR in the participants' list, hover over your name, and click "rename" to make the change

**Course Objectives:**

The objectives of this course are to teach basic ideas of sampling from an applied perspective and to provide experience with life-like problems. The course will cover the main techniques used in actual sampling practice, simple random sampling, stratification, systematic selection, cluster sampling.
This is an applied statistical methods course. In this we will concentrate on problems of applying sampling methods to human populations, because survey practices are widely used in that area.

**Student Learning Outcomes**:

At the end of this course students should be able to understand how we can compare sampling designs or estimators and know that properties make a better design or estimator.

## Course Content, Learning Material & Activities Schedule

| week | Title / Topic | Instructional Material | Assessment |
|---|---|---|---|
| 1 | Overview and introduction to sampling | PowerPoint Presentations, worksheet, activities and Reading Material | |
| | Some basic terminologies of sampling techniques | | |
| 2 | Introduction to simple random sampling (SRS) | | |
| | Parameter Estimation in SRS | | |
| 3 | Sample size estimation | | Quiz 1 |
| | Construction of Confidence Interval | | |
| 4 | Practice of SRS on Software | | Assignment 1 |
| | Cont. | | |
| 5 | Introduction to stratified sampling | | |
| | Parameter Estimation in stratified sampling | | |
| 6 | Estimation of optimal sample size in stratified sampling | | Quiz 2 |
| | Cont. | | |
| | Introduction to systematic sampling | | |

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|---|---|---|---|
| 7 | Discuss how to draw sample | | Assignment 2 |
| 8 | Estimation of parameters in systematic sampling | | |
| | Practice | | |
| Mid - Term | | | |
| 9 | Introduction to Cluster Sampling | PowerPoint Presentations, worksheet, activities and Reading Material | |
| | Cont. | | |
| 10 | Use of Auxiliary variables in sampling techniques. | | Quiz 3 |
| | Introduction to ratio method of estimation | | |
| 11 | Estimation of parameters in Ratio estimation | | |
| | Cont. | | Assignment 3 |
| 12 | Introduction to Regression estimators | | |
| | Cont. | | |
| 13 | Parameter's estimation in Regression method | | Quiz 4 |
| | Cont. | | |
| 14 | Comparison between ratio and regression methods | | Assignment 4 |
| | **Revision** | | |
| 15 | Project | | |
| 16 | Final Exam | | |

**Textbooks, Materials, Supplies and other Resources**


1. Cochran, W .G. Sampling Techniques, John Willey and Sons
2. Steven k. Thompson. Sampling, John Wiley, New York.
3. Mukhopadhyay, P. Theory and Methods of Survey Sampling, Prentice Hall of India.
4. Hanif, M. Ahmad, Munir and Shahbaz, M. Sampling Techniques: Methods and Applications, Nova Science Publishers, Incorporated, 2018.
5. Online reading link: link: http//: online.stat.psu.edu/stat506

**Course Requirements:**

**Class Participation**

Attendance and participation in discussions

The breakup is as follows:

| | |
|---|---|
| **Class Participation** | 2% |
| **Assignments:** | 18% |
| **Quizzes:** | 10% |
| **Midterm exam**: | 20% |
| **Final term exam:** | 30% |
| **Project** | 20% |
| **TOTAL** | **100%** |

**[OPTIONAL] Missed Assignments/ Make-Ups/ Extra Credit**

*- No delayed assignments.*
*-No Make-up class and exam*
*-No retake exam*

**Attendance Policy:**

If a student does not attend a minimum of 70% of total classes, he/she will not be permitted to take the final examination in the course.

**Classroom Participation:**

Students must participate in classroom for class activities and ma ask questions related to lesson taught.

**Grading Legend**

Below is the grading legend of FCCU (published in all catalogues and available on the FCCU website) as approved by the Academic Council and applies for Fall as well

| Grade | Point Value | Numerical Value | Meaning |
|---|---|---|---|
| A | 4.00 | 93-100 | Superior |
| A- | 3.70 | 90-92 | |
| B+ | 3.30 | 87-89 | Good |
| B | 3.00 | 83-86 | |
| B- | 2.70 | 80-82 | |
| C+ | 2.30 | 77-79 | Satisfactory |
| C | 2.00 | 73-76 | |
| C- | 1.70 | 70-72 | |
| D+ | 1.30 | 67-69 | Passing |
| D | 1.00 | 60-66 | |
| F | 0.00 | 59 or below | Failing |