

King Fahd University of Petroleum & Minerals
Mathematics & Statistics Department

Syllabus
Sampling Methods
Term 161

Course Name : (STAT 565) Sampling Methods.
Prerequisites : Graduate Standing
Class Schedule : UT 5:00 PM - 6:15 PM, Bld 6 Room 103.
Instructor : **Name:** Monjed H. Samuh
E-mail: monjedsamuh@kfupm.edu.sa
Website: <http://faculty.kfupm.edu.sa/math/monjedsamuh/>
Office : Bld 5 Room 410.
Office Hours : UT 02:20 PM - 05:00 PM or by appointment (via email).

Textbook Lohr S. L. (2010), **Sampling: Design and Analysis**. Cengage Learning.

Recommended Texts

1. Mukhopadhyay, P. (2013), *Theory and Methods of Survey Sampling*, 2nd Edition. Prentice Hall.
2. Bethlehem J. (2009), *Applied Survey Methods*. John Wiley & Sons.
3. Cochran, W. G., (2007). *Sampling Techniques* (3rd ed.). John Wiley & Sons.
4. Sampath S. (2001), *Sampling Theory and Methods*. Narosa Publishing House.
5. Rao, P. S. R. S. (2000), *Sampling Methodologies with Applications*. Chapman and Hall/CRC.
6. Govindrajalu, Z. (1999), *Elements of Sampling Theory and Methods*. Prentice Hall.

Course Objectives The main objective of the course is to provide a deeper understanding of theory and applications of Sampling Methods. The course will help graduate students in learning advance techniques of analyzing the data after survey and sampling procedures.

Course Description Simple random sample. Sampling proportion. Sample size estimation. Stratified random sampling. Ratio, regression, and difference estimators. Systematic sampling. Single stage cluster sampling. Multi-stage cluster sampling. Unequal probability sampling.

Intended Learning Outcomes After the completion of this course, students should be able to:

1. Learn a variety of common sampling designs.
2. Apply sampling theory to sample survey problems.
3. Understand elements of proper survey design.

Computer package We will use R for computations and simulations. R is a free program which can be downloaded for any platform from <http://www.r-project.org/>.

Course Policies

- Please do the reading from the sections to be covered before coming to class each day. Your instructor will be planning class activities assuming you have done the reading.
- **Homework:** There will be two types of homework assignments.
 1. **Mini Homework:** these are problems which arise while lecturing. I will assign a mini homework almost every class day.
 2. **Major Homework:** these are set of problems assigned weekly.
- You may collaborate on homework, but you must write your submitted work in your own words. All steps are required, this includes showing calculations, derivations, and proofs.
- You have to devote to this class several hours per week of concentrated attention to understand the subject enough so that standard problems become routine. If you think that coming to class and reading the examples while also doing something else is enough, you're in for an unpleasant surprise on the exams.
- Attending classes is compulsory; according to the University regulations, 8 or more unexcused absences will earn you a grade of **DN**.
- In the event that a student has to miss a class, he is responsible to get caught up with the materials covered and homework assigned.
- All students are expected to be in the classroom on time. Being late will be treated as being absent.
- It is the student's responsibility to observe the academic calendar for important dates.
- It is the student's responsibility to be knowledgeable about the rules and regulations that govern your study at the university.
- No make-up tests will be hold in any circumstance, any student with accepted excuse will be given the grade of the final transferred to appropriate weight. Make-up of the final test will follow the university regulations.

- I assume, the students come to class to learn, I come to class to teach.
 - We will be respectful of everyone in class.
 - Mobiles should be turned off before the beginning of each class, no exceptions.
 - There will be no talking in class, except to ask instructor questions or share comments with the entire class. Talking is disruptive to the class and disrespectful to the Instructor.
 - There will be no texting, reading, eating, etc., while in class.
- Cheating will be dealt with according to the University rules.
- Wastah is the thing that the Instructor hates the most!. Definitely, No grade will be changed because of Wastah.

Grade Distribution

- Your final grade will depend on the following components with these proportions:
 - **Assignments and Quizzes (10%): Quizzes may not be announced in advanced.**
 - **Project (20%):** You will write-up and present a project near the end of the semester.
 - **First Test (20%):** Oct. 30, 2016 (Sunday).
 - **Second Test (20%):** Dec. 4, 2016 (Sunday).
 - **Final Exam (30%):** Jan. 11, 2017 (Wednesday) – As per the official schedule.
- You need to achieve at least 50% in order to pass the course.
- **Grading Scale**

Score	93-100	87-92	80-86	73-79	67-72	60-66	55-59	50-54
Grade	A+	A	B+	B	C+	C	D+	D