

**KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS**  
**Department of Mathematics and Statistics**  
**Dhahran, Saudi Arabia**

**STAT501: PROBABILITY AND MATHEMATICAL STATISTICS**  
**TERM 131: (1 SEPTEMBER 2013 TO 9 JANUARY, 2014)**

**Course Objectives:**

To master the basics of probability theory with an aim to apply it to popular probability models and samples with a view to apply to statistical inference.

Textbook: Rohatgi, VK and Saleh, AK (2001) *An Introduction to Probability and Statistics*, Wiley.

Instructor: Anwar Joarder

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Office Hours: SMW: 1100 – 1159 am, and 0200 to 0300 pm or by appointment.

**Assessment:** Assessment for this course will be based on homework, two major exams and a comprehensive final exam, as in the following:

Activity	Weight
<i>Home Works</i>	16%
Exam 1 (Joint Random Variables)	16%
Exam 2 (Properties of Random Variables and Limiting Distributions)	16%
Project (Bivariate Distributions)	16%
Final Exam (Comprehensive):	36%

**Syllabus**

A Mathematical Introduction (W1)  
 Elementary Probabilistic Methods (W1-W2)  
 Discrete Random Variables (W2)  
 Properties of Discrete Random Variables (W3)  
 Continuous Random Variables (W3)  
 Properties of Continuous Random Variables (W4)  
 Discrete Order Statistics (W5)  
 Continuous Order Statistics (W5)  
 Mathematical Aspect of Selected Discrete Probability Models (W6)  
 Mathematical Aspect of Selected Continuous Random Variables (W6)  
 Joint Discrete Random Variables (W6)  
 Joint Continuous Random Variables (W6-W7)  
 Fixed Sample (W8)  
 Random Sample (W8)  
 Discrete Sampling Distributions (W8)  
 Continuous Sampling Distributions (W9)  
 Limiting Distributions (W9-W10)  
 Bivariate Normal Distribution (W11)  
 Normal Sampling Distributions for Inference (W12)  
 Large Sample Theory (W13)  
 Simulation (W13)  
 Continuous Bivariate Distributions (W13)  
 Sampling Theories for Bivariate Normal Distribution (W14)  
 Continuous Multivariate Distributions (W15)  
 Non-Central Probability Functions (W15)

**Last Day of Lecture, Wednesday, 25 December, 2013**

**General Notes:**

- Students are required to carry pens, note-taking equipment and a calculator to every lecture and exams. It is strongly recommended to keep a binder for class-notes.
- Students are also expected to take notes and organize their solved questions in a binder for easy retrieval to help them in study and review for class, exams, etc. It is to the student's advantage to keep a binder for storing class notes, homework, and other graded assignments. Students who are organized will find it easier to find important materials when studying for exams.
- To successfully prepare for the exam, students must **solve problems** daily and with discipline. The selected assigned problems are specifically designed to prepare you for major exams and final exam. So, it is expected that you complete these problems **step-by-step** and **with comprehension**.
- Never round your intermediate results to problems when doing your calculations. This will cause you to lose calculation accuracy.
- For every exam, so you need to bring with you *pens, pencils, a sharpener, an eraser, and a calculator*.

**Academic Integrity:** All KFUPM policies regarding ethics and academic honesty apply to this course.