

KHAZAR UNIVERSITY

Department of Mathematics

**Course Syllabus
Applied Statistical Analysis**

Instructor: Aslanova Nigar

IDENTIFICATION:**Subject: Applied Statistical Analysis****Credit points: 3****Prerequisites: Calculus1, Calculus2, Linear Algebra****Semester: Fall 2006\2007****TEXTBOOK:****Core Textbook**

1. John E. Freund, Mathematical Statistics, 1998

Supplementary books

2. H.C. Saxena, Probability & its Applications, 1995
3. Rinaman, Foundations of Probability & Statistics,1997

ASSESMENT:

	Timing	Weighting
Midterm Exam:	80 minutes	40
Final Exam:	80 minutes	40
Quiz:	2x20=40 minutes	10
Participation and activity:	-	10

TEACHING METHODS**Lectures: 3 hours per week****Seminars: 2 hours per week****LEARNING OUTCMES:****After studying this subject the student should know:****The basic concepts of probability & events, the concept of independent random variables, discrete & continuous random variables, the expected value of random variables & its functions, distribution functions, Chebyshevs Inequality, the central limit theorem, random sampling.**

Weekly Schedule

Week	Topics	Readings
1	Combinatorial methods.Theory of sets. Operation on sets. The sample space. Event. Mutually exclusive event.	[1], chapters 1,2
2	The probability of event. Some rules of probability Conditional probability . Independent events.Bayes theorem.	[1], chapter 2
3	Random variable. Probability distribution.	[1], chapter 3
4	Continuous random variable . Probability density function.	[1], chapters 3
5	Multivariate distribution.	[1], chapter 3
6	Mathematical Expectation. The Expected value of a random variable	[1], chapter 4
7	Moments. Variance. Standard deviation.	[1], chapter 4
8	Midterm exam	repeating 1-7
9	Chebyshevs theorem. Moment generating function.	[1], chapter 4
10	Product moment. Covariance.	[1], chapter 4
11	Special probability distribution. The discrete uniform distribution.The Bernoulli distribution.The binomial distribution. The Poisson distribution.	[1], chapter 5
12	The normal distribution.	[1], chapter 6
13	Sampling distribution.	[1], chapter 8
14	Estimation of means	[1], chapter 11
15	Linear regression.	[1], chapter 14
16	The method of least squares.	[1], chapter 14
	Final exam	