

1. Instructor / Instructors Information

N	Name of the instructor(s)	Office hours	Section	Building and office location	E-mail
1	Dr.Taghreed Abdalrazek	.S, Tu., Th. 9-10.30 Wed. 9.30-11	FAR	(7)51C	Taghreed_1177@yahoo.com
2	Dr.Lobna Eid El-Tayeb	.S, Tu., Th. 10-11,12-1 Th. 8-9, 10-11	AAR	(7)51C	Lobnaeid67@yahoo.com

2.Course Information

Course Name	Course code	Course Number
Applied probability & Random process	Stat	352

Theoretical Course meeting time	Theoretical course meeting places	Lab work meeting time	Lab work meeting place
1-1.50	(61)	Wed.	L107G(61)

Course website address	Course prerequisite and needed skills to course success
	Course Prior requirements: Stat 210

Teaching method	Board_ Projector
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Description of the course	General objective from the course	The students will study the joint CDFs of bivariate random variable for discrete and continuous random variables. Conditional distributions, conditional means and variances. Functions of random variables and expectation of random variables, sum of independence of random
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		variable. Also, study the behavior the distributions. The student studies the basic definition of random process, some model of random process as Markov chain and Poisson process. Some model of reliability theory.
	Course Subjects and Philosophy , teaching methodology	
	Relationship between this course and other courses according to department plan	Course Prior Requirements: STAT 210

3. Course Objectives

1. A statement of what the student will know and be able to do as the result of learning

- ❖ The student will study the distribution of bivariate random variables in the case of discrete and continuous random variables.
- ❖ The conditional distribution and marginal distribution will be also given.
- ❖ The students can be able to obtain the properties of bivariate random variable (mean, variance, covariance and correlation coefficient)
- ❖ The student will be also study the distribution of function of random variables
- ❖ The student will know some of basic definition of random process, in particular, Poisson process and Markov chain. They also can be able to obtain the transition matrix through the Mathcad package.
- ❖ The student is able to obtain the reliability function and hazard rate and mean time to failure for the most important lifetime distributions.

2. A statement on how they will be expected to demonstrate their learning

- ❖ The student will be able to obtain the joint distribution of bivariate random variables in the case of discrete and continuous random variables.
- ❖ They also can be able to obtain the marginal distribution and conditional distribution in case of discrete and continuous random variable
- ❖ In addition, they can be able to find mean, variance, conditional mean, conditional variance and correlation.
- ❖ They can also obtain distribution of function of random variable.

- ❖ After studying this course the student will be able to know the basic concepts of random process and study some model of random process
- ❖ The student can be able to use the Mathcad package for drawing the distributions, obtaining the different probabilities, and generating a random numbers from these distributions.
- ❖ The student can be able to use the Mathcad package for drawing reliability function, hazard rate for some lifetime distributions.
- ❖ The student can also be able to obtain the transition matrix of Markov chain for two or more steps. The limiting distribution of states can also be obtained
- ❖ They can also classify the state of chain.

4. Learning Resources

Course	Textbook, and where to obtain it	نظرية الاحتمالات د/ جلال الصياد
References	List of the references and where to obtain them	1. Fundamental of applied probability and random Process, Oliver C.I be (2005) 2. Probability and stochastic process, Roy, Yates, David, Goodman (2005) 3. A First course n probability , ^{7th} ed Ross, S. (2007).
	Websites	مكتبة الشربتلى Probability and random Process On Line
List of the software if needed		MATHCAD

5. Course Requirements and Grading

1. Student assessment

- ❖ *The number and grading of exams*

First exam	20	0/0/ 1434
Second exam	20	0/0/1434
Final exam	40	0/0/1434
Assignments& quizzes	10	
Lab	10	

2. Expectation from student for each assignment and project.

- ❖ Solve a H.W. at a time
- ❖ Receive all the correct assignments at the end of the term.

3. Expectation from student: Attitudes, involvement, behaviors, skills, and ethics

- ❖ Punctually attend all scheduled classes, asking questions when clarifying is needed.
- ❖ All mobiles should be turned off during the class
- ❖ Be responsible for all instructions and assignments given in class as well as for the supporting textbook content
- ❖ All homework assignments should be submitted on time.
- ❖ The student expected to spend at least 5 working hours weekly doing homework problem and studying the course.
- ❖ You are expected to be an active participant in this class.

4. Important rules of academic conduct

- ❖ The exam will not be repeated again for any student absent in the periodic examinations, if there is acceptable excuse, the degree will be determined as a proportion of the final degree exam
- ❖ Attend the class regularly, asking questions when clarification is needed and participating in any class activities
- ❖ There is no grade for attendance. Yet according to university rules, if you miss more than 25% of the classes, you could be denied from taking the final exam and get an DN grade. It is your responsibility to make up for any missed materials or assignments. You may come late or leave early without disturbing your classmates.

6. Detailed Course Schedule

(Meeting two times a week)

Course topics		The notes regarding the students activities	
Week #	Topic	Reading Assignment	What is Due?
1 (2-8) /2/2014	Introduction to the course		Buy Book
	Review of some basic concepts		

Course topics		The notes regarding the students activities	
Week #	Topic	Reading Assignment	What is Due?
2 (9-15)/2/2014	Joint CDF of bivariate random variables		
3 (16-22)/2/2014	Conditional PMF for discrete random variables		
	Conditional PMF for continuous random variables		
4 (23-1)/3/2014	Conditional mean and variance		
	Covariance and Correlation coefficient		Assignment 1
5 (2-8)/3/2014	Distribution of function of random variable		Quiz 1
	In discrete, and continues cases		
6 (9-15)/3/2014	Linear and power function		
	Expectation of function of random variable		
7 (16-20)/3/2014	Sum of independent random variables		Assignment 2
	First exam		
8 (30-5)/4/2014	Mid term Break(20-29)/3/2014		
	Reliability function and hazard rate		
	Reliability and hazard rate for some distributions		
9 (6-11)/4/2014	Reliability of series and parallel system		Assignment 3
	Introduction to Random process		Quiz 2
10 (13-17)/4/2014	Classification of Random process		

Statistics department*Course portfolio: Instructor Shafya Abdullah*

Course topics		The notes regarding the students activities	
Week #	Topic	Reading Assignment	What is Due?
	States and transition of Markov chain		
11 (20-24)/4/2014	Transition probabilities		
	General two-state Markov chain		
12 (27-1)/5/2014	Second exam		
	Power of transition matrix		
13 (4-8)/5/2014	Probability distribution		
	Limiting distribution		Assignment 4
14 (11-15)/5/2014	Counting process		
	Poisson process		

There's a revision week ((19-23)/5/2014