



Course Specifications

Course Title:	Probability (20)
Course Code:	Stat 415
Program:	Statistics
Department:	Statistics and Operations Research
College:	College of Science
Institution:	King Saud University

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A. Course Identification

1. Credit hours:
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 8 / Year 4
4. Pre-requisites for this course (if any): Stat 415
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	
3	Tutorial	30
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

<p>1. Course Description STAT 415 focuses on the theory of introductory probability. The course goals are: To learn the theorems of basic probability. To learn applications and methods of basic probability. To develop theoretical problem-solving skills. Sequence of events...</p>
<p>2. Course Main Objective Sequence of events, continuous random vector, joint probability distribution, conditional distribution, generating functions, order statistics, law of large numbers, central limit theorems Hogg, R.V., and Tanis, E.A. (2015). <i>Probability and Statistical Inference</i></p>

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Knowledge of basic probability theory	K1
1.2	Knowledge of random vectors and probability distributions	K3
1.3	Knowledge of probability inequality	K2
1.4	Explain the meaning Order statistics, distribution of Minima and Maxima.	K4
2	Skills :	
2.1	Applying the right statistical formulas and techniques to answer given questions and data.	S2
2.2	Students were encouraged to do questions by themselves without depending on teaching assistant in the lab.	S3
3	Values:	
3.1	Apply the theoretical foundations of probability theory and distribution theory	C1
3.2	Computation methods were illustrated in the class.	C2

C. Course Content

No	List of Topics	Contact Hours
1	Basic probability theory	6
2	Random vectors and joint probability distributions	6
3	Functions and Transformations of Random Variables	6
4	Probability inequalities.	6
5	Order Statistics	6
...		
Total		30

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	- Understanding descriptive statistics.	Tutorial sessions should follow the material taught in lectures.	Written Exam
1.2	- Familiarity with basic probability and probability distributions. - Order Statistics	Tutorial sessions should follow the material taught in lectures.	Written Exam
2.0	Skills		
2.1	Students were encouraged to do questions by themselves	Examples, and Solved Problems.	Written Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.2	Perform, present, and interpret basic statistical analyses and probability theory.	Examples, and Solved Problems.	Written Exam
...			
3.0	Values		
3.1	Describe and apply basic concepts of probability, random variables, and commonly used statistical probability distributions.	Examples, and Solved Problems.	Written Exam
3.2	Distinguish among the different measurement scales or types of variables	Examples, and Solved Problems.	Written Exam
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First Exam	7	30%
2	Second Exam	12	30%
3	Final Exam	16	40%
4			
5			
6			
7			
8			

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice: For at least two hours a week, faculty and teaching staff are available to provide student consultations and academic advice.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<i>FUNDAMENTALS OF PROBABILITY AND STATISTICS FOR ENGINEERS, T.T. Soong</i> PROBABILITY AND STATISTICAL INFERENCE, Robert V. Hogg Elliot A. Tanis Dale L. Zimmerman
Essential References Materials	<i>AI FUNDAMENTALS OF PROBABILITY AND STATISTICS FOR ENGINEERS, T.T. Soong</i> PROBABILITY AND STATISTICAL INFERENCE, Robert V. Hogg Elliot A. Tanis Dale L. Zimmerman

Electronic Materials	AI <i>FUNDAMENTALS OF PROBABILITY AND STATISTICS FOR ENGINEERS</i> , T.T. Soong PROBABILITY AND STATISTICAL INFERENCE, Robert V. Hogg Elliot A. Tanis Dale L. Zimmerman.
Other Learning Materials	Solutions to past exams

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms for 15-20 students.
Technology Resources (AV, data show, Smart Board, software, etc.)	
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	Indirect (Survey)
Quality of learning resources	Students	Indirect (Survey)
Achievement of course learning outcomes	Faculty	Direct: Written exam

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Course instructor Dr. Mohamed Rhaima
Reference No.	
Date	11-05-2021