0ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

Course Specifications
(CS)

Course Specifications

Institution Date

College/Department : Science / Mathematics Department

A. Course Identification and General Information

1. Course title and code:Probability theory (Math 371N)
2. Credit hours:3 **hours**
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)
4. Name of faculty member responsible for the course **A specific team from the mathematics department**
5. Level/year at which this course is offered
6. Pre-requisites for this course (if any): Math 103 Math 110
7. Co-requisites for this course (if any)

8. Location if not on main campus	
9. Mode of Instruction (mark all that apply)	
a. traditional classroom	P hat percentage?
80 b. blended (traditional and online)	P What percentage?
20 c. e-learning	What percentage?
d. correspondence	What percentage?
f. other	What percentage? Comments:

B Objectives

1. What is the main purpose for this course?

1. Study of concept of probability
2. Study of random variables
3. Study of discrete and continuous random variables
4. Study of expectation and moment probability function
5. Study the joint probability function

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Create, improve and complete (beamer or power point) presentations.
- Update the course by comparing to the contents at other universities.
- Follow up on the latest books to select the most appropriate to update the contents.
- Create a question bank.
- Find web sites related to the topic.

C. Course Description (Note: General description in the form used in Bulletin or handbook) Course Description:

Topics to be Covered		
List of Topics	No. of weeks	No. of hours
1. Random variables and its distribution	2	6
2. Mathematical expectation	1	3
3. Moment generating function	3	6
4. Special cases of probability distributions	3	6
5. Joint probability function	2	6
6. Conditional probability	2	6
7. Transformations of random variables	2	6

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other:	Total
Contact Hours	2	0	1	3*15=90	4*15=60	120
Credit	3	0	0	3*15		

3. Additional private study/learning hours expected for students per week. 3

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and

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On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert

supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Random variables and its distribution	1. Solve statistical problems manual and by using computer programs. 2. Saving important rules of this course	1. Quizzes and final exam 2. Research projects
1.2	Study of random variables		
1.3	Study of discrete and continuous random variables		
1.4	Study of expectation and moment probability function		
1.5	8. Study the joint probability function		
2.0	**Cognitive Skills**		
2.1	Understand the conceptof probability theory	Lectures are covered by different worked examples. Engage students in discussions with questions and answers. Homework consisting in solving selected exercises. Encourage and develop self education.	Homework include problems, solution of which requires scientific thinking, and applications of essential theorems and results of the course Oral and written tests. Explain and communicate the corrected answers of the exams and quizzes. Research projects.
2.2	Understand the conceptofrandom variables		
3.0	**Interpersonal Skills & Responsibility**		
3.1	not exist		
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Cooperation between students.		
4.2	Effective participation		
5.0	**Psychomotor**		
5.1	not exist		
5.2			

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)								
	Concept of probability	**Discrete Random variable**	**Continuous random variable**	**Mathematical expectation**	**Moment generating function**	**Joint probability function**	**Transformation of random variables**		
Knowledge	Recall	Recall	Recall	Remember	Remember	Recall	Recall		
Comprehension	Discuss	Discuss	Discuss	Discuss	Discuss	Discuss	Discuss		
Application	Assess	Assess	Assess	Assess	Assess	Assess	Assess		
Analysis	Conclude	Conclude	Conclude	Conclude	Conclude	Conclude	Conclude		
Synthesis	Validate	Validate	Validate	Validate	Validate	Validate	Validate		
Evaluation	Judge	Judge	Judge	Judge	Judge	Judge	Judge		

6. Schedule of Assessment Tasks for Students During the Semester

Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
ASSIGNMENT 1	1	15%
ASSIGNMENT 2	2	15%
Final exam	3	50%
ASSIGNMENT 1	5	15%
ASSIGNMENT 2	11	15%
Final exam	15	50%
Quizzes	4	15%
Quizzes	5	15%
Quizzes	11	15%

weekly Quizzes 10% weekly

10%

weekly

10%

5 Research projects Research projects 5 Research projects 13 10%

10% 13

10%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

2hrs/week for students’ consultation and academic advice.

E Learning Resources

Arabic references: د.ثروت محمد عبدالمنعم نظرية الاحتمالات 1-
2. List Essential References Materials (Journals, Reports, etc.) د. محمد غالب المدني الاحتمالات والإحصاء 1-
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) **1- An introduction to probability . theory and its applications** w.F elle r **2- Probability theory and mathematical statistics** M.Fisz
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. spss و mathematica

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

- Lecture room with 20 seats.
- Smart class

2. Computing resources (AV, data show, Smart Board, software, etc.)

- Computer room with at least 10 systems
- Computer room with 20 seats

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Student course evaluation at the conclusion of the course. • Sample of assignments and tests. • Observations and discussions during the semester
2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department • Faculty assessment of the course and effectiveness of teaching delivery. • Periodic self-assessment of the program.
3 Processes for Improvement of Teaching • Participate to workshops on evaluation approaches and effective teaching methods to enable instructors to improve their teaching skill. • Teaching method will focus on students' learning and on course learning outcomes
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) • A Committee reviews samples of student work in this course to check on the standard of grades and achievements. • An external faculty member evaluates the course material and the students' work to compare the standard of grades and achievements with those at his university.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

Carry out Self- assessment at every two years and external assessment invited faculty members every four years. The feedback received from these assessments will be used to plan for further improvement in the course syllabus, teaching method, and delivery of course materials