هيئة تقويم التعليم
Education Evaluation Commission
المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)

STAT 322
Decision Theory

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Education Evaluation Commission

Course Specifications

Institution:	Date:
King Saud University	3/2/2018
College/Department : **Faculty of Science / Department of Statistics and Operations Research**	

A. Course Identification and General Information

1. Course title and code:
Decision Theory (STAT 322)

2. Credit hours: **2(2+0+0)**

3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
Compulsory Course in the B. Sc of Statistic
Elective Course in the B. Sc of OR

4. Name of faculty member responsible for the course
Prof. Fayz Abokalam

5. Level/year at which this course is offered:
Level 5 / 3th year

6. Pre-requisites for this course (if any):
STAT 215

7. Co-requisites for this course (if any):
None

8. Location if not on main campus:
Main campus / Faculty of Science

9. Mode of Instruction (mark all that apply):

a. traditional classroom	√	What percentage?	100
b. blended (traditional and online)		What percentage?	
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?

The aim of this course and **the main learning outcomes for students enrolled in the course:**

- Reviewing the available decisions and the state of nature of each decision that will be made by the decision-maker and make the necessary comparisons between them using an appropriate numerical criteria as the loss function.
- Training the students to make Statistical decisions under uncertainty with or without data.
- Consider some inference problems from the point of view of decision-ma

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)

- The theoretical parts will be development and more recent topics are to be introduced.
- Updating books and the web site of the course periodically.
- Using several references
- Encouraging students to search for the information related to the subjects of the course in the Internet

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

Course Description:

Studying the statistical decision under uncertainty with or without data. Consider statistical inference (estimation and hypothesis testing) from the standpoint of statistical decision making.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
No data decision: Actions Space, State of nature space, loss function	1	2
Pure Min Max and Bayes actions	1	2
Mixed Min Max and Bayes actions	2	4
Data decision problem (Decision Rule)	1	2
Pure Min Max and Bayes Decision Rules	1	2
Value of the data in pure Min Max and Bayes solutions	1	2
Mixed Min Max and Bayes Decision Rules	1	2
Value of the data in Mixed Min Max and Bayes solutions	3	6
Estimation as a decision problem	1	2
Bayes Estimation as a decision problem	1	2
Testing hypothesis as a decision problem	2	4

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planed	30	0		0	0	30
	Actual	30	0		0	0	30
Credit	Planed	30	0		0	0	30
	Actual	30	0		0	0	30

3. Additional private study/learning hours expected for students per week. 2 hours

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

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	• Understand the elements of the decision problem under investigation. • Use mathematics for making decision. • Make the suitable type of decision and the analysis among various techniques in the field under uncertainty.	**1-** Textbook **2-** References **3-** Notes	Mid-term exams Home works Final exam Projects
1.2			
2.0	**Cognitive Skills**		
2.1	• Demonstrate capability of choosing the appropriate statistical methods for a particular application. • Formulate significant research questions, use appropriate statistical decision method, and analyze and interpret the results. • Read, evaluate, and interpret numerical, statistical and general scientific information. • Looking to any subject from different viewpoints. • Comparing things should always be performed. • Reaching the appropriate conclusions from the used analysis		
2.2			
3.0	**Interpersonal Skills & Responsibility**		
3.1	• Students were encouraged to raise questions.		

	• Students were encouraged to participate in the class and not to miss a lecture. • Working homework jointly and individually in class and out • Encouraging students to ask questions any time during lectures and office hours.		
3.2			
4.0	**Communication, Information Technology, Numerical**		
4.1	Short cut computation methods were illustrated in the class.		
4.2			
5.0	**Psychomotor**		
5.1	Support self-confidence when making a decision		

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Home works	Regularly	10%
2	First mid-term test	6	25%
3	Second mid-term test	11	25%
4	Final exam	16	40%

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)

Office hours: 5 hours/ week
Communications by e- mail

E Learning Resources

1. List Required Textbooks

- The Element of Decision Theory, B. W. Lindgren. Macmillan, New York(1971)
- Decision Theory, Principles and Approaches, Giovanni Parmigiani. John Wiley & Sons (2009)
- Principals of Statistical Inference (Jalal Al Sayad)

2. List Essential References Materials (Journals, Reports, etc.)

– Lectures' Notes.

3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.
Encouraging students to obtain related information from the Internet

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- Lectures' Notes.
- Power point presentations and other handouts posted on the course web site.

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.) • Classroom
2. Technology resources (AV, data show, Smart Board, software, etc.) • data show • Smart Board
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 • Course evaluation by students. • Faculty – students general gathering.
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department • Faculty periodical evaluation of syllabus • Peer consultation on teaching • Departmental council discussions
3. Processes for Improvement of Teaching • Providing samples of all kind of assessment in the departmental course portfolio of the course. • Conducting exams of the similar courses at different well known universities. • Using diverse references • Revising the textbook, Notes that are used in teaching the course
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)
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • The course material and learning outcome are periodically reviewed and the changes to be taken are in the departmental and higher councils. • Faculty periodical evaluation of syllabus

Name of Course Instructor: Prof. Fayz Abokalam_____

Signature: _____ Date Specification Completed: _____

Program Coordinator: _____

Signature: _____ Date Received: _____