



**ATTACHMENT 5.**

## **T6. COURSE SPECIFICATIONS (CS)**

## Course Specifications

Institution: Al Yamamah University	Date: November 25, 2018
College/Department : Computer and Information Systems / Mathematics and Natural Sciences	

### A. Course Identification and General Information

1. Course title and code: Probability and Statistics / STT 103			
2. Credit hours: 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) All Engineering programs except interior architecture			
4. Name of faculty member responsible for the course: Dr. Ali Wagdy Mohamed			
5. Level/year at which this course is offered: First Year			
6. Pre-requisites for this course (if any): MTH 001			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus: Main Campus			
9. Mode of Instruction (mark all that apply):			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="100"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments:			

## B Objectives

### 1. What is the main purpose for this course?

This course is concerned with providing students with an understanding and ability to apply: (1) Statistics, Data, and Statistical Thinking, (2) Methods for Describing sets of Data, (3) Probability, (4) Random Variables and Probability Distributions, (5) Inferences based on a single Sample estimation with confidence intervals. The methods to be covered are selected for their relevance knowledge and skills required for Business and IT requirements.

### 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)

- Increased use of LMS (Moodle based) for material delivery/receipt and discussion forums.
- Refer students to related web sites.

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

### Course Description:

This two-credit course provides a basic background of science of statistics, types of data, graphical methods and numerical methods of describing data, probabilities, normal, binomial, Poisson distributions, sampling distribution and central limit theorem, large and small sample confidence intervals for mean and proportions and determining the sample size.

### 1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
<ul style="list-style-type: none"> <li>- The Science of Statistics</li> <li>- Types of Statistical Applications in Business</li> <li>- Types of Data</li> </ul>	1	3
<ul style="list-style-type: none"> <li>- Describing Qualitative and Quantitative Data</li> <li>- Graphical Methods for describing Qualitative and Quantitative Data</li> <li>- Numerical Methods of Central Tendency</li> <li>- Numerical Methods of Variability</li> <li>- Interpreting the Standard Deviation</li> <li>- Numerical Methods of Relative Standing</li> <li>- Methods for Detecting Outlier</li> </ul>	3	9

- Events, Sample Spaces And Probability - Unions and Intersections - Complementary Events - The Additive Rule and Mutually Exclusive Events - Conditional Probability - The Multiplicative Rule and Independent Events	3	9
- Two Types of Random Variables - Probability Distribution for Discrete Random Variables - The Binomial Theorem - The Poisson Distribution - The Normal Distribution - The Sampling Distribution of $\bar{x}$ and the Central Limit theorem	4	12
- Identifying the Target Parameter - Large-Sample Confidence Interval for a Population Mean - Small-Sample Confidence Interval for a Population Mean - Large-Sample Confidence Interval for a Population Proportion - Determining the Sample Size	4	12
Total	15	45

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

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	45					45
	Actual	45					45
Credit	Planned	3					3
	Actual	3					3

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

5

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
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<b>1.0</b>	<b>Knowledge</b> On successful completion of the program students will be able to		
1.1	Outline: - Statistics and probability concepts and their applications. - Quantitative and qualitative data and graphical and numerical methods of describing them.	Formal lecture Group discussion Use of websites Use of excel /spss through out	HW assignment Quizzes Mid-term and final exams Class participation
1.2	Write: - Sample space, types of events and probabilities. - Additive, multiplicative and conditional rules.	Lecture Group discussion Use of websites	HW assignment Quizzes Exams Class participation
1.3	Write: - Confidence intervals for mean and proportion. - Simple regression equation and correlation coefficient.	Lecture Group discussion Use of websites	HW assignment Quizzes Exams Class participation Oral presentations
<b>2.0</b>	<b>Cognitive Skills</b> On successful completion of the program students will be able to		
2.1	Use probability distribution of discrete random variable and its expected value and standard deviation and their applications.	Formal Lecture Group discussion	HW assignment Quizzes Exams Class participation
2.2	Use Binomial, Poisson and Normal distributions.	Formal Lecture Group discussion	HW assignment Quizzes Exams Class participation
2.3	Summarize decisions and conclusion for confidence intervals for small and large samples using appropriate Z and t distributions.	Formal Lecture Group discussion	HW assignment Quizzes Exams Class participation
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b> On successful completion of the program students will be able to		
3.1	NA	NA	NA
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b> On successful completion of the program students will be able to		
4.1	Calculate numerical problems related to: - The mean, median, mode, range, standard deviation and variance. - The permutation, combination and counting rules.	Formal Lecture Group discussion	HW assignment Quizzes Exams Class participation
<b>5.0</b>	<b>Psychomotor</b>		
5.1	NA	NA	NA

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)										
	1.1	1.2	1.3	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1
1.1	-	-	-	-	-	-	-	-	-	-	-
1.2	X	-	-	-	-	X	X	-	-	X	-
1.3	-	-	-	-	-	-	-	-	-	-	X
2.1	-	-	-	X	-	-	-	-	-	-	X
2.2	-	-	-	X	X	-	-	-	-	-	X
2.3	-	-	-	-	-	X	-	-	-	-	-
4.1	-	-	-	X	-	-	-	-	-	-	-

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	First Quiz	4	8%
2	First Homework	8	8%
3	Mid – Term Exam	8	20%
4	Second Quiz	12	8%
5	Third Quiz	14	8%
6	Second Homework	15	8%
7	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)

Faculty Members have around 10 office hours every week for student consultations.

## E Learning Resources

1. List Required Textbooks

McClave, Statistics for Business and Economics, 8th ed. Prentice- Hall 2008.

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

1) Introduction To Probability and Statistics, By William Mendenhall, Robert J. Beaver, Barbara M. Beaver, 12th ed., Published by Thomson Brooks/Cole.”

2) Business Statistics: A Decision Making Approach, by David F. Groebner, Published 2007 Pearson/Prentice Hall.

3) Business Statistics in Practice, by Bruce L Bowerman, Richard T O'Connell, J B Orris, Published by McGraw-Hill 2007.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

Latest Statistical Data Bases on the websites.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

<http://LMS.alyamamah.edu.sa/>

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

## 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.)  
Classrooms

2. Technology resources (AV, data show, Smart Board, software, etc.)  
Data Show

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

NA

## G Course Evaluation and Improvement Processes

<p>1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p>At the end of the course, students receive feedback forms designed as per guidelines of NCAAA that are used to evaluate the effectiveness of teaching.</p>
<p>2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department</p> <p>Peer review visits are normally conducted among faculties wherever possible during academic year. During the lecture time Chair (Head)/ Dean of the department visits the classroom. At the end of each visit, faculties are usually set together to discuss related issues</p>
<p>3. Processes for Improvement of Teaching</p> <ul style="list-style-type: none"> <li>- Feedbacks from students using different types of survey including Student Experience Survey (SES), Program Evaluation Survey (PES), and Alumni Survey (AS) are shown and discussed with faculty members to improve the teaching.</li> <li>- Specialized workshops and seminars are conducted throughout academic year to address specific teaching strategies and improvements.</li> </ul>
<p>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)</p> <p>Peer review and discussion with course coordinator. There should be a strong liaison with teacher from some external university/institute in order to exchange ideas related to marking/ evaluating quizzes and assignments</p>
<p>5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <p>At the end of each semester, Curriculum committee conducts a meeting with all faculty members in which surveys filled by the students and other feedbacks from faculty members are discussed. Effectiveness of the courses, mistakes done and weaknesses are discussed. These points are made basis for the planning for improvements for next semester/year.</p>

Name of Course Instructor: Dr. Ali Wagdy Mohamed      Signature: \_\_\_\_\_  
Date Specification Completed: November 25, 2018

Program Coordinator: Dr. Sadiqah Almarzooq      Signature: \_\_\_\_\_  
Date Received: \_\_\_\_\_