



المركز الوطني للتقويم والاعتماد الأكاديمي
National Center for Academic Accreditation and Evaluation

ATTACHMENT 5.

T6. COURSE SPECIFICATIONS (CS)



ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Course Specifications
(CS)**

Institution : University of Tabuk	Date of Report
Faculty/Department: Faculty of Science/ Department of Statistics	

A. Course Identification and General Information

1. Course title and code: Biostatistics - STAT 262			
2. Credit hours: 4 hours			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Bachelor of Biology			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Level 3/2 nd Year			
6. Pre-requisites for this course (if any): MATH 101			
7. Co-requisites for this course (if any): N/A			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input type="checkbox"/> YES	What percentage?	<input type="text" value="100%"/>
b. Blended (traditional and online)	<input type="checkbox"/> NO	What percentage?	<input type="text" value="0%"/>
c. e-learning	<input type="checkbox"/> NO	What percentage?	<input type="text" value="0%"/>
d. Correspondence	<input type="checkbox"/> NO	What percentage?	<input type="text" value="0%"/>
f. Other	<input type="checkbox"/> NO	What percentage?	<input type="text" value="0%"/>
Comments: N/A			

B Objectives

<p>1. What is the main purpose for this course? This course will introduce students to the basic issues involves in introductory statistics course: types of data, descriptive statistics, probability, random variables, and basic probability distributions.</p>
<p>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) Periodically reviewing of the course with study plan committee in the department.</p>

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Types of data, descriptive statistics, frequency distributions, graphs,	1	4
measures of central tendency and measures of dispersion (ungrouped data)	2	8
Basic probability, definition and assumptions of probability, addition rule.	1	4
conditional probability, independence of events , evaluation of laboratory tests (specificity, sensitivity and related tests)	2	8
Discrete random variable and probability mass function, mean and variance	1	4
Binomial distribution. Continuous random variable and probability density function, mean and variance, normal distribution,	2	8
Sampling distribution of the sample mean. Point and interval estimation of the mean (μ), sample size determination,	2	8
point and interval estimation of the population proportion (p), sample size determination.	1	4
Hypothesis testing, introduction, test about the population mean (μ),	1	4
test about two means assuming equal variances (independent samples), test about the proportion (p),	2	8
paired t-test. Simple linear regression, estimation of the regression equation, Pearson correlation coefficient	15	60

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	60	0	0	0	0	60
Credit	60	0	0	0	0	60

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

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. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Memorize and define descriptive statistical methods	<ul style="list-style-type: none"> • Lectures. • Quizzes and assignments. • Free discussion. • Use most recent Text Book and references. 	<ul style="list-style-type: none"> • Quizzes and assignments. • Midterm 1. • Midterm 2. • Final Exam.
1.2	Describe random variables and some probability distributions and its properties.		
2.0	Cognitive Skills		
2.1	Explain probability rules and some probability distributions	<ul style="list-style-type: none"> • Lectures. • Quizzes and assignments. • Free discussion. • Use most recent Text Book and references 	<ul style="list-style-type: none"> • Quizzes and assignments. • Midterm 1. • Midterm 2. • Final Exam.
2.2	Explain descriptive statistical methods.		
3.0	Interpersonal Skills & Responsibility		
3.1	Illustrate the notions of probability rules and probability distributions and hypothesis testing, and decision making.	<ul style="list-style-type: none"> • Lectures. • Quizzes and assignments. • Free discussion. 	<ul style="list-style-type: none"> • Free discussion groups. • Homework
4.0	Communication, Information Technology, Numerical		
4.1	Demonstrate using Statistical Packages	<ul style="list-style-type: none"> • Lectures • Laboratories 	<ul style="list-style-type: none"> • Quizzes and assignments • Midterm 1. • Midterm 2. • Final Exam.
4.2	Demonstrate computing methods		
5.0	Psychomotor		
5.1	Reconstruct his confident with his abilities	<ul style="list-style-type: none"> • Lectures. • Quizzes and assignments. • Free discussion. 	<ul style="list-style-type: none"> • Quizzes and assignments
5.2	Illustrate his opinion and show his abilities		

Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

NQF Learning Domains	Suggested Verbs
Knowledge	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
Cognitive Skills	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
Interpersonal Skills & Responsibility	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write
Communication, Information Technology, Numerical	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
Psychomotor	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct



Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider	Maximize	Continue	Review	Ensure	Enlarge	Understand
Maintain	Reflect	Examine	Strengthen	Explore	Encourage	Deepen

Some of these verbs can be used if tied to specific actions or quantification.

Suggested assessment methods and teaching strategies are:

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

5. 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
1	Assignments (5)	Every three weeks	5%
2	Quizzes (5)	Every three weeks	5%
3	Midterm-1 Exam	7	25%
4	Midterm-2 Exam	11	25%
5	Final Exam	At the end of the semester	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice.

6 office hours in each work

E. Learning Resources

1. List Required Textbooks

- Elementary Statistics a Step by Step Approach, Bluman, 6-th edition, 2006.
- Introduction to Statistics, J. S. Milton and J. J. Meteer. D. C. Health and Company, (1986).
- Statistics and Data Analysis: an Introduction, Andrew F. Siegel. Wiley, (1988).
- Introductory Statistics: Thomas H. Wannacott & Ronald J. Wannacott, 5th edition. New York: John Wiley, (1990).

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

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

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

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

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 of each section to accommodate 25 students.

<p>2. Computing resources (AV, data show, Smart Board, software, etc.)</p> <p><i>Data show</i></p>
<p>3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)</p> <p><i>N/A</i></p>

G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p>Questionnaires of:</p> <ul style="list-style-type: none"> • Course evaluation. • Program evaluation. • Students experiences.
<p>2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor</p> <ul style="list-style-type: none"> • Instructors questionnaire by students. • Annual reports which prepared by the department.
<p>3 Processes for Improvement of Teaching</p> <ul style="list-style-type: none"> • Use a variety of teaching strategies. • Provide modern educational tools.
<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>Review a sample of students work by independent professors.</p>

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

- Exchange the experience and ideas between faculty members.
- Analysis statistical results of student assessments.
- Use the analyzed results to come up with new recommendations.

Name of Course Instructor: Dr.

Signature: Date Specification Completed: 15/8/1440

Program Coordinator: **Dr. Omar Salem Obeid Bahattab**

Signature: *Omar Bahattab* Date Received: 16/8/1440