



Course Specifications

Course Title:	Environmental Data analysis
Course Code:	ENS 206
Program:	Environmental Sciences and Technology/ Environmental Health Program
Department:	Environmental Sciences Department
College:	Faculty of Meteorology, Environment and Arid Land Agriculture
Institution:	King Abdulaziz University

Table of Contents

A. Course Identification.....	3
6. Mode of Instruction (mark all that apply)	3
B. Course Objectives and Learning Outcomes.....	3
1. Course Description	3
2. Course Main Objective.....	3
3. Course Learning Outcomes	4
C. Course Content	4
D. Teaching and Assessment	4
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods	4
2. Assessment Tasks for Students	5
E. Student Academic Counseling and Support	5
F. Learning Resources and Facilities.....	5
1.Learning Resources	5
2. Facilities Required.....	6
G. Course Quality Evaluation	6
H. Specification Approval Data	6

A. Course Identification

1. Credit hours: 3			
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: 4 th /7 th			
4. Pre-requisites for this course (if any): STAT 100 (GENERAL STATISTICS)			
5. Co-requisites for this course (if any): none			

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	65%
2	Blended	-	-
3	E-learning	2	35%
4	Distance learning	-	-
5	Other	-	-

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	45
3	Tutorial	-
4	Others (specify)	-
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

This course

This course deals with study of the concepts of statistics and experimental design. Handling, processing and description of the data. Identify the correct experimental design according to the scientific procedure

2. Course Main Objective

This course provides students with the basic concepts of statistics and experiment design. Use of data to describe the phenomena under study. Skill in choosing the best experimental design suitable for scientific experiments. Enabling the student to perform statistical analyzes and how to interpret the results, as well as developing skills in using the computer in statistical analysis and making decision methods.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	The basic concepts of statistics and experiment design.	
1.2	Use of data to describe the phenomena under study.	
1.3	Skill in choosing the best experimental design suitable for scientific experiments.	
1.4	Ability to perform statistical analyzes and how to interpret the results	
1.5	Skills in using the computer in statistical analysis and making decision methods	
2	Skills :	
2.1	Justify statistics and experimental design and its role in biological phenomena.	
2.2	Analyze problems cover the statistics and biological phenomena.	
3	Values:	
3.1	Demonstrate independent role and as part of a team.	
3.2	Assess resources, time and cooperate with other members of the group.	
3.3	Show results of work to others.	

C. Course Content

No	List of Topics	Contact Hours
1	Definition of statistics and its importance in environmental sciences	۲
2	Presentation and analysis of one variable and two variables	۴
3	The normal distribution curve	۴
4	Tests for one or two sample	۴
۵	Non-parametric tests	۴
۶	Analysis of variance	4
۷	Design experiments	۴
۸	Handling with results	۴
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	The basic concepts of statistics and experiment design.	<ul style="list-style-type: none"> • In-class lecturing • Homework assignments. • Writing field report. 	<ul style="list-style-type: none"> • In-class discussion. • Periodic, mid-term, and final exams.

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.2	Use of data to describe the phenomena under study.	" " " " " " " " "	" " " " " " " " "
1.3	Skill in choosing the best experimental design suitable for scientific experiments.	" " " " " " " " "	" " " " " " " " "
1.4	Ability to perform statistical analyzes and how to interpret the results	" " " " " " " " "	" " " " " " " " "
1.5	Skills in using the computer in statistical analysis and making decision methods		
2.0	Skills		
2.1	Justify statistics and experimental design and its role in biological phenomena.	<ul style="list-style-type: none"> • In-class lecturing • Homework assignments. • Writing field report. 	• Periodic, mid-term, and final exams.
2.2	Analyze problems cover the statistics and biological phenomena.	" " " " " " " " "	" " " " " " " " "
3.0	Values		
3.1	Share duty as part of a team.	<ul style="list-style-type: none"> • In-class lecturing • Homework assignments. • Writing field report. 	• Periodic, mid-term, and final exams.
3.2	Adapt to resources, commit to time and cooperate with other members of the group.	" " " " " " " " "	" " " " " " " " "

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Periodic exams	monthly	15%
2	Midterm exam	8	20%
3	Lab. Exam	15	25%
4	Homeworks	3 th , 6 th , 10 th	10%
5	Final exam	14	30%

*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 : 6 hrs/week

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	El – Nakhlawy, F.S. (2008). Principles of Statistic, Design and Analysis of the Bio – Experiments. Sci. Pub. Centre, KAU, Saudi Arabia
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Essential References Materials	Introductory Statistics, Vol 1&2, 2013 Textbook Equity Edition www.textbookequity.org ISBN: 978-1-304-89164-8
Electronic Materials	Internet websites.
Other Learning Materials	handouts

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room with max 20 seats – Computer Lab with 10 seats
Technology Resources (AV, data show, Smart Board, software, etc.)	Laptop and data show for teaching and demonstration of topics related to the course.
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
Course contents covering	Students (direct through meetings, or indirect using the central online questionnaires	Online questionnaire and Students- faculty meetings (advisory committee)
Quality of teaching	" " " " "	Online questionnaire and students- faculty meetings (advisory committee)
Office hours commitment	" " " " "	Online questionnaire and Students- faculty meetings (advisory committee)

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	END Dept. Council and Faculty Academic Accreditation Committee
Reference No.	
Date	April 10, 2021