

QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department
----------------	--

Study plan No.	2022/2021	University Specialization	Bachelor of Mathematics			
Course No.	0101443	Course name	Applied Statistics			
Credit Hours	3	Prerequisite/ Co-requisite	0101341			
Course type	<input type="checkbox"/> MANDATORY UNIVERSITY REQUIREMENT	<input type="checkbox"/> UNIVERSITY ELECTIVE REQUIREMENTS	<input type="checkbox"/> FACULTY MANDATORY REQUIREMENT	<input type="checkbox"/> Support course family requirements	<input checked="" type="checkbox"/> Mandatory requirements	<input type="checkbox"/> Elective requirements
Teaching style	<input type="checkbox"/> Full online learning		<input checked="" type="checkbox"/> Blended learning		<input type="checkbox"/> Traditional learning	
Teaching model	<input type="checkbox"/> 1 Synchronous: 1 asynchronous		<input checked="" type="checkbox"/> 1 face to face : 1 asynchronous		<input type="checkbox"/> 2 Traditional	

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Division number	Time	Place	Number of students	Teaching style	Approved model
				Lecture	

Brief description

Elements of testing hypotheses, Statistical inference about one and two populations parameters, Simple and multiple regression, Correlation coefficient, The analysis of variance of one and two-factor experiments, The Latin squares, Chi square test for homogeneity, Independences and goodness of fit, Using SPSS programing.
--

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1) Applied Statistical Method by William L. Carlson and Betty Thorne, Prentice Hall, 1997. 2) Understandable Statistics by Charles H. Brase and Corrine P. Brase, Houghton Mifflin Company 2003, seventh edition.				
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1) Mathematical statistics with applications, seventh edition, by John E. Freund's (2004), Pearson Prentice Hall. 2) Mathematical Statistics with applications, 7th edition. By Dennis Wackerly, William Mendenhall and Richard Schaeffer, Publisher Thomson Brooks/Cole 2008.				
Supporting websites	http://people.stat.sc.edu/Hitchcock/stat512spring2012.html				
The physical environment for teaching	<input checked="" type="checkbox"/> Class room	<input type="checkbox"/> labs	Virtual educational platform	<input type="checkbox"/> Others	
Necessary equipment and software	SPSS PROGRAMING.				
Supporting people with special needs					
For technical support					

Course learning outcomes (S= Skills, C= Competences K= Knowledge,)

QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department
----------------	--

No.	Course learning outcomes	The associated program learning output code
Knowledge		
K1	Understand the statistic concepts.	MK1
K2	Define the distribution of the sample.	MK2
K3	Design a Chai-square tests for the variance.	MK3
K4	Recognize the analysis of variance (ANOVA).	MK4
K5	Define linear regression model.	MK5
Skills		
S1	Analyze statistical problems.	MS1
S2	Write the statistic report.	MS2
S3	Outline two way analysis of variance.	MS3
S4	Use of programming languages such as SPSS to solve problems.	MS4
Competences		
C1	Cooperate to work effectively in the group assignments.	MC1
C2	Use of computer in producing assignments.	MC2

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm exam	30%	30%	40%	30%
Participation / practical applications	0	0	10%	30%
Asynchronous interactive activities	30%	20%	0	0
Final exam	40%	50%	50%	40%

Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style	Reference
1	EXPLORATORY DATA ANALYSIS Populations and sampling, simple random sample. Descriptive statistics: Measures of data location and spread Mean.	Lecture	24-28 38-41
2	median, mode, range variance and standard deviation, percentiles and quartile Inter-quartile range ,Grouped data, frequency histograms, symmetry and skewness (left/right).	Lecture	41-47
3	Chebyshev and empirical rules. Graphical methods: Stem-and-leaf plots, Box-and-whisker plots. Linear coding of data and its effect on measures of location and dispersion.	Lecture	47-55
4	SAMPLING DISTRIBUTIONS Distribution of the sample mean from the normal population. Central Limit Theorem and large sample mean distribution	Lecture	352-366
5	Distribution of the sample proportion. Standard error and error margin of an estimator.	Lecture	366-376
6	CHI-SQUARED TESTS	Lecture	634-667

QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department		
	Goodness of fit tests for uniform, binomial, Poisson and normal distributions.		
7	Tests of homogeneity, independence for contingency tables.	Lecture	634-667
8	Marginal and Conditional distributions. MID EXAM	Lecture	
9	ANALYSIS OF VARIANCE Completely randomized design and One way analysis of variance.	Lecture	595-605
10	Two way analysis of variance with one and more than one observation per cell. z- Test of the mean.		606-618
11	Tests on Main effects and Interactions.	Lecture	667-705
12	LINEAR REGRESSION Linear regression model, scatter grams, Least Squares. Method of estimation of the intercept and slope and their tests of hypothesis.	Lecture	629-640
13	Regression analysis of variance and the F-test. Coefficients of correlation and determination.	Lecture	645-653
14	Predictions and prediction intervals.	Lecture	781-786
15	Multiple and polynomial regressions and their ANOVA.	Lecture	787- 795
16	Final Exam		

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
1	Background	On vector valued functions and partial derivatives Students Notes or any Statistics book	Self-reading and Discussion
2	Video 1 Solving exercises	E-learning	Discussion in the class
3	Home work1: On the subjects studied on the first three weeks	(Lecture notes and Ref.1)	Submit a pdf or word sheet
4	Quiz 1	On the subjects studied on the first three weeks	Submitting on the E-learning
5	Assignment 1: On Frenet-Serret frame	Internet sources and the other Supportive learning resources	Presentation
6	Video 2	Solving exercises	Discussion in the class
7	Home work 2 On the subjects studied in the weeks 4,5 and 6	(Lecture notes and Ref.1)	Submit a pdf or word sheet
8	Assignment 2: On Bertrand curves	Internet sources and the other Supportive learning resources	Submitted with the mid exam
9	Self-reading	Linear Regression	Talk
10	Video3 Solving exercises	E-learning	Discussion in the class
11	Home work 3: On the subjects studied after the midexam	(Lecture notes and Ref.1)	Submit a pdf or word sheet
12	Self-reading	ANOVA	Talk
13	Quiz 2	On the subjects studied on the subject studied after midexam	Submitting on the E-learning

QF01/0408-4.0E		Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department	
14	Presentation of the subject: The second fundamental form.	Internet sources and the reference book	Video
15	Video 4 Revision of all the course	E-learning	
16	Final Exam	-	