

SUBJECT SYLLABUS ACADEMIC OVERVIEW INTERNATIONAL SCHOOL OF ECONOMIC & ADMINISTRATIVE SCIENCES

COURSE NAME AND CODE: Probability & Statistics II (21402)

PROGRAM:

Bachelor of Business Administration (BBA)

Bachelor of International Marketing & Logistics Administration (BIMLA) Bachelor of Economics & International Finance (EIF)

LEVEL OF STUDY: Undergraduate Programme

GENERAL ACADEMIC INFORMATION									
LATEST UPDATE	2020-2								
ACADEMIC DEPARTMEN T	Mathematics & Statistics								
SUBJECT TYPE	Mandatory								
LANGUAGE	Spanish								
	Programme	Sem	ester						
SEMESTER	BBA		5						
SEIVIESTER	BIMLA		5						
	EIF	4	4						
NUMBER OF									
ACADEMIC	3								
CREDITS			1	L					
HOURS OF									
ACADEMIC	144	Contact hours	64	Hours of independent/autonomous work	80				
WORK									



LEARNING PREREQUISIT ES	 Understand the concept of a defined integral as the approximation of the area under the graph of a curve Use integration techniques to solve application problems Classify sets of data differentiating characteristics that identify types of variables Represent sets of data which have the same characteristics through tables and graphs Describe and interpret the behaviour of data through the calculation of central tendency measures and variability. Identify the cause-and-effect relationship applying the calculation of conditional probabilities Apply discrete and continuous probability distributions to the solution of problems that can be related to usual distributions. Employ sample distributions to model the behaviour of central measures of dispersion of a set of data. 							
INTERNATIO		ulary and technical language to	o communicate	in different cultural contexts.				
NAL COMPONENT		ultural challenges. ch and/or projects with interna	ational and inte	ercultural components.				
SUSTAINABLE DEVELOPME NT GOALS (SDG)	4. Quality Education							
COURSE DETAI	LS							
COURSE DESCRIPTION	The course Probability and Statistics II develops and assures the mathematical reasoning surrounding the topics of random variables, parameter estimation, hypothesis tests, linear regression, and variance analysis (ANOVA). It provides tools for activities of administration and engineering, which require of the statistical inferences process to take decisions about different processes of uncertain behaviour. The students that take Probability and Statistics II learn to use sample information to suggest conclusions and take decisions regarding population problems. Afterwards they will use these methodologies to analyze recollected data from experimentation, while applying linear regression and variance analysis (ANOVA).							
KEY WORDS:	Statistics, data visualization, variance analysis							
COMPETENC	EICEA ILOS or Programme ILOS	Course ILOS	Туре	Content	Teaching and Learning strategy	Assessment Method		
ES	ILO01	Select a representative	Skill	Statistical Inference	Observation	Progress in		
DEVELOPED	ILO02	sample with the goal to		I. Use of data in R	Based	indicators of		
	ILO03 ILO04	make inferences about an origin population.		 Description of surroundings: R-project, 	Learning	learning or performance are		
	BIMLA ILO7			Rstudio, Rstudio Cloud.		evaluated in		



BBA ILO08			2.	Introduction of data		different instances
BIB ILO08			3.	Getting basic		throughout the
				measurements		semester with
			4.	Building of statistical		quizzes,
				graphs		workshops,
			١١.	Sampling methods and		homework, group
				interval estimation		projects, individual
			1.			tests, and a final
				probabilistic sampling		exam, in which the
ILO01	Build estimation intervals	Skill	2.		Problems	student must
ILO02				and two samples.	Based	demonstrate the
ILO03					Learning	learning objectives
ILO04						of the course.
BIMLA ILO7						Rubrics will be used
BBA ILO08						to evaluate de
BIB ILO08						learning evidence
ILO01	Compare parameters of the	Skill	111.	/1	Projects	and the respective
ILO02	same nature in two		3.	1 0	Based	feedback of the
ILO03	populations.			intervals with R	Learning	process and final
ILO04						answer. Exam
BIMLA ILO7						feedback will be
BBA ILO08						individual and
BIB ILO08		CL :!!			<u> </u>	collective work feedback will be
ILO01	Validate formulated	Skill	1.	Hypothesis test in one	Projects	
ILO02	suppositions about the			sample.	Based	given in groups.
ILO03	value of a populational				Learning	
ILO04	parameter.					
BIMLA ILO7						
BBA ILO08 BIB ILO08						
		Skill	2	llupothosis tost is two	Droinata	-
ILO01 ILO02	Validate suppositions	SKIII	2.	/1	Projects Based	
ILO02 ILO03	comparing the parameters			samples.		
ILOU3	in two populations.				Learning	



ILO04 BIMLA ILO7 BBA ILO08 IBI LO03Validate dependence or goodness of fit in a set of data.SkillA. Goodness of fit and independence test.Problems Based LearningILO01 ILO03 ILO04 BIMLA ILO7 BBA ILO08Validate dependence or goodness of fit in a set of data.SkillA. Goodness of fit and independence test.Problems Based LearningILO04 BIMLA ILO7 BBA ILO08Adjusts the linear model regression and validates ILO04 ILO03 ILO04SkillLinear Regression (Simple - Multiple)Challenge Based LearningILO01 BBA ILO08Adjusts the linear model regression and validates ILO04SkillLinear Regression (Simple - Multiple)Challenge Based LearningILO04 BIMLA ILO7 BBA ILO08Adjusts the linear for genession coefficients.SkillLinear Regression (Simple - Multiple)Challenge Based LearningILO04 ILO04 BIMLA ILO7 BBA ILO08SkillSkillLinear Regression (Simple - Multiple)Challenge Based LearningILO04 ILO04 BIB ILO08Select the best set of covariables which explain a variableSkill7. Sequential methods to choose regression modelsProblems Based LearningILO01 BBA ILO08 BIMLA ILO7 BBA ILO08Does variance analysis in different populations.SkillVariance analysis ANOVA 1. Variance analysis techniquesProjects Based				-		
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BIMLA ILO7 BBA ILO08 BIB ILO08BIMLA ILO7 BBA ILO08 BIB ILO08Bit ILO08estimation of ordinary least squares about the regression coefficients 4. Prediction 5. Variance analysis 6. TransformationsProblems Based LearningILO01 ILO02 ILO03 VariableSelect the best set of covariables which explain a variableSkill7. Sequential methods to choose regression modelsProblems Based LearningILO03 ILO04 BIMLA ILO7 BBA ILO08 BIB ILO08Does variance analysis in different populations.SkillVariance analysis ANOVA 1. Variance analysisProjects Based	ILO03	hypothesis of regression		1. Ordinary Least Squares	Learning	
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ILO01Select the best set of covariables which explain a lLO03Skill7. Sequential methods to choose regression modelsProblems Based LearningILO04BIMLA ILO7BA ILO08Skill7. Sequential methods to choose regression modelsProblems Based LearningILO01Does variance analysis in different populations.SkillVariance analysis ANOVA 1. Variance analysisProjects Based	BBA ILO08			least squares		
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ILO01Select the best set of covariables which explain a variableSkill7. Sequential methods to choose regression modelsProblems Based LearningILO03variablevariableLearningBased LearningILO04BIMLA ILO7BBA ILO08BIB ILO08ProjectsBIB ILO08ILO01Does variance analysis in different populations.SkillVariance analysis ANOVA 1. Variance analysisProjects Based				5. Variance analysis		
ILO02covariables which explain a variablechoose regression modelsBased LearningILO03variableLoo4LearningBIMLA ILO7BBA ILO08Loo8Loo8BIB ILO08Loos variance analysis in different populations.SkillVariance analysis ANOVAProjects Based				6. Transformations		
ILO03 variable Learning ILO04 BIMLA ILO7 BIMLA ILO7 BBA ILO08 BIB ILO08 Variance analysis ANOVA ILO01 Does variance analysis in different populations. Skill Variance analysis ILO02 different populations.	ILO01	Select the best set of	Skill	7. Sequential methods to	Problems	
ILO04 BIMLA ILO7 BIMLA ILO7 BBA ILO08 BIB ILO08 ILO01 Does variance analysis in ILO02 Skill Variance analysis ANOVA Projects Based Based	ILO02	covariables which explain a		choose regression models	Based	
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ILO02 different populations. 1. Variance analysis Based	BIB ILO08					
	ILO01	Does variance analysis in	Skill	Variance analysis ANOVA	Projects	
ILO03 techniques Learning	ILO02	different populations.		1. Variance analysis	Based	
	ILO03			techniques	Learning	



	ILO04			2. One factor ANOVA				
	BIMLA ILO7							
				3. Graphic methods and				
	BBA ILO08			verifications of a model				
	BIB ILO08							
	ILO01	Identify the variability	Skill	4. ANOVA of two or more	Projects			
	ILO02	components in a factorial		factors	Based			
	ILO03	experiment.			Learning			
	ILO04							
	BIMLA ILO7							
	BBA ILO08							
	BIB ILO08							
	ILO01: Global V	Vision: Demonstrate an unders	tanding of mul	ticultural environments both in local	and global contex	ts.		
					0.000			
	II 002 · Critical	Thinking: Evaluate informati	on using critic	al and analytical reasoning to addr	ess changing eco	nomic and husiness		
	situations.		on using critic		cos changing cco			
	situations.							
		ork: Understand and work with	others of diffe	arent backgrounds to solve problems	develop meaning	ful relationships and		
	ILO03: Teamwork: Understand and work with others of different backgrounds to solve problems, develop meaningful relationships, and share knowledge.							
	ILOO4: Ethics	& Social Responsibility: Dem	onstrate awar	anass of athical issues in husiness	environments an	d contribute to the		
	ILO04: Ethics & Social Responsibility: Demonstrate awareness of ethical issues in business environments and contribute to the improvement of social conditions.							
	BBA ILO08: Communication: Communicate effectively in written and spoken manner in Spanish and English. BIB ILO08: International Business Plan: Develop and apply entrepreneurial spirit and creative thinking through a business plan associated							
	with an established company or a student start-up.							
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				ng and logistics in the decision making		m.		
				encias, Pearson Educación, 9a edición, México stica aplicadas a la ingeniería, Limusa Wiley, 2		0).		
BIBLIOGRAP				Estadística aplicada a la ingeniería y los nego				
HY	(2015).	2. II. Estadística Informacial Ediciona		:- (2010)				
		S, H., Estadística Inferencial, Ediciones Y, R. M., Applied statistics for busines						