

SUBJECT SYLLABUS ACADEMIC OVERVIEW INTERNATIONAL SCHOOL OF ECONOMIC & ADMINISTRATIVE SCIENCES

COURSE NAME AND CODE: Probability & Statistics I (21303)

PROGRAM:

Bachelor of Business Administration (BBA) Bachelor of Administration & Service (BA&S) Bachelor of International Business (BIB)

LEVEL OF STUDY: Undergraduate Programme

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

	GENERAL ACADEMIC INFORMATION								
LATEST	2020-2								
UPDATE									
ACADEMIC									
DEPARTMEN	Mathematics & Statistics								
Т									
SUBJECT	Mandatan								
TYPE				Mandatory					
LANGUAGE	Spanish								
SEMESTER	Programme	Seme	ester						
	BBA	4	1						
	BA&S	4	1						
	BIB	4	1						
	BIMLA	4	1						
	EIF		3						
NUMBER OF									
ACADEMIC	2								
CREDITS									
HOURS OF									
ACADEMIC	96	Contact hours	64	Hours of independent/autonomous work	32				
WORK									



	Read, write and interpret mathematical notation, tables, diagrams and graphs.						
LEARNING	 Apply algebraic operation properties to solve and evaluate problems in different contexts. 						
PREREQUISIT	 Model 	situations in diffe	rent context	s with one varia	able functions		
ES	 Analyz 	e functions from t	heir concept	s and propertie	25		
	Calculate derivatives applying properties.						
INTERNATIO NAL COMPONENT	 Vocabulary and technical language to communicate in different cultural contexts. 						
SUSTAINABLE DEVELOPME NT GOALS (SDG)	4. Quality Education						
COURSE DETAIL	S						
	Probability &	Statistics I develo	ons and sec	ures mathemat	tical reasoning around the central t	heme of proba	nilistic and statistical
	robability & statistics i develops and secures mathematical reasoning around the central theme of probabilistic and statistical reasoning contered in themes such as data analysis localization and distribution measures, random variables, probability of events						
	continuous and discrete probability distributions, mean variance, and applications. The source Probability 9. Statistics provides different						
COURSE	tools to analyze model solve and interpret problems related with daily situations which involve concents of randomness make decision						
DESCRIPTION	taking easier	n the process of r	research gat	thering data it	s description analysis representation	and interpretat	ion is crucial and its
	precisely Statis	tics the one that c	an provide tl	he necessary kr	owledge to succeed. In the same way	there are nume	rous processes which
	involve some degree of uncertainty for which the use of probability concepts will be able to model them correctly.						
KEY WORDS:	Statistics, data visualization, random process						
	EICEA ILOS Course ILOS Teaching Assessment						Assessment
	or			_		and Learning	Method
	Programme			Туре	Content	strategy	
	ILOS						
COMPETENC	ILO01	Classifies sets	of data,	Knowledge	Introduction	Discovery	Progress in
ES	ILO02	differentiating		_	1. Definitions of population,	Based	indicators of
DEVELOPED	ILO03	characteristics	which		parameters, deterministic	Learning	learning or
	ILO04	identify the	types of		models, probabilistic		performance are
	BBA ILO08	variables			models, and sample.		evaluated in
	BIB ILO08				2. Basic concepts of census		different instances
					and sampling		throughout the



			3.	Presentation of Excel tools		semester with
ILO01	Represents sets of data	Skill	Descrip	otive statistics	Theoretical	quizzes,
ILO02	which have the same		1.	Definitions and types of	Class	workshops,
ILO03	characteristics with tables			variables (qualitative and		homework, group
ILO04	and graphs.			quantitative)		projects, individual
BBA ILO08			2.	Definitions and examples		tests, and a final
BIB ILO08				of types of qualitative		exam, in which the
				variables (nominal and		student must
				ordinal)		demonstrate the
			3.	Definitions and examples		learning objectives
				of types of quantitative		of the course.
				variables (discrete and		Rubrics will be used
				continuous)		to evaluate de
ILO01		Skill	Descrip	otive statistics	Simulation	learning evidence
ILO02			4.	Descriptions of numeric	Based	and the respective
ILO03				and graphic data	Learning	feedback of the
ILO04			a.	Numerically: frequency		process and final
BBA ILO08				distribution for		answer. Exam
BIB ILO08				quantitative variables,		feedback will be
				group and ungrouped data.		individual and
			b.	Frequency histograms		collective work
			5.	Central tendency measures		feedback will be
			a.	Mean, median, mode		given in groups.
			6.	Quartiles and Boxplot		
			7.	Dispersion measures		
				(variance, standard		
				deviation, variance		
				coefficient)		
ILO01	Calculates and interprets	Skill	Probab	oility	Theoretical	
ILO02	the probability and algebra		1.	Definition of events and	Class	
ILO03	of events, as well as their		_	samples space		
ILOU4	probabilistic properties.		2.	Venn diagrams and		
BBA ILO08				algebraic events		



BIB ILO08			3. Content methods	
			4. Probability axioms	
ILO01	Identifies the cause-effect	Knowledge	Probability	Theoretical
ILO02	relation applying		5. Probability of an event and	Class
ILO03	conditional probabilistic		equiprobable events	
ILO04	calculations.		6. Independent events	
BBA ILO08			7. Conditional probability,	
BIB ILO08			independence and product	
			rule	
			8. Total probability theorem	
ILO01	Applies Bayes theorem in	Skill	Probability	Problems
ILO02	different contexts		9. Bayes theorem	Based
ILO03				Learning
ILO04				_
BBA ILO08				
BIB ILO08				
ILO01	Deduces probability	Skill	Random variables and Probability	Theoretical
ILO02	functions of random		distributions	Class
ILO03	variables to identify		1. Random variable concept	
ILO04	probability properties, as		2. Discrete probability	
BBA ILO08	well as the expected value		distributions	
BIB ILO08	and variance		3. Continuous probability	
			distributions	
			Mathematical expectation	
			1. Expected value and its	
			properties	
			2. Calculation of expected	
			value of random discrete	
			and continuous variables	
			3. Variance of a random	
			variable and standard	
			deviation	



ILO01	Applies continuous and	Skill	Known Discrete Probability	Problems	
ILO02	discrete probability		Distributions	Based	
ILO03	distributions to solve		1. Binomial distribution	Learning	
ILO04	problems which can me		2. Hypergeometric		
BBA ILO08	associated to usual		distribution		
BIB ILO08	distributions.		3. Negative binomial		
			distribution		
			4. Poisson distribution		
			Known Continuous Probability		
			Distributions		
			1. Normal distribution		
			2. Applications of normal		
			distribution		
			3. Approximation of a		
			binomial distribution to a		
			normal distribution		
			4. Gamma and exponential		
			distributions		
			5. Chi-Squared distribution		
			6. Beta distribution		
ILO01	Uses sample distributions	Skill	Fundamental sample distributions	Problems	
ILO02	to model the behavior of		and data description	Based	
ILO03	the central measures and		1. Sample statistics	Learning	
ILO04	dispersion of a set of data.		2. Sample distributions		
BBA ILO08			3. Mean distribution and		
BIB ILO08			central limit theorem		
			4. Sample distribution for		
			variance		
			5. T distribution		
			Intervals of confidence		
			1. Confidence intervals for		
			the mean in a sample with		
			known variance		



		2. Confidence intervals for						
		the mean in a sample with						
		unknown variance						
		3. Confidence intervals for						
		the variance of a sample						
	ILO01: Global Vision: Demonstrate an understanding o	f multicultural environments both in local and global contexts.						
	ILO02: Critical Thinking: Evaluate information using situations.	critical and analytical reasoning to address changing economic and business						
	ILO03: Teamwork: Understand and work with others of different backgrounds to solve problems, develop meaningful relationships, and share knowledge.							
	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 ap with an established company or a student start-up.	ply entrepreneurial spirit and creative thinking through a business plan associated						
	 WALPOLE, Ronal E and Myers, Raymond H and Myers, S 2012 	haron L, Keying Ye., Probabilidad y Estadística para Ingenieros, 9na Edición, Pearson Education,						
BIBLIOGRAP HY	 ANDERSON, David R, Sweeney, Dennis J, Williams, Thomas A., Estadística para Administración y Economía, 10a Edición, Cengage Learning, 2008. CANAVOS, George., Probabilidad y Estadística, Mc. Graw Hill, 1988. 							
	 MONTGOMERY & DOLIGLAS – Probabilidad v Estadística Aplicada a la Ingeniería, 2da Edición, Limusa, 2013. 							