11/28/2022 DATE

☑ REQUIRED COURSE

☑ ELECTIVE COURSE

Business DIVISION

☐ NEW COURSE

☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	BUS-281		**TITLE:** *(30 Characters Max)*	Business Statistics							
SEM CR HRS:	3	**Lecture:**	3	**Lab:**	0				**ECH:**	3	
Course Level:	☑ Gen Ed / IAI ☐ Baccalaureate /Non-IAI	☐ Career/Technical ☐ Dev Ed/ Not in Degree Audit		**Clinical Practicum:**	0	**Work-based Learning**	0	**WBL ECH:**	0		
COURSE PCS #	11 - 27.0501		**IAI Code**	BUS 901				**Contact Hours (Minutes Per Week)**			
Repeatable (Y/N):		**Pass/Fail (Y/N):**		**Variable Credit (Y/N):**		**Min:**	**Max:**	**16 Wks**	150	**8 Wks**	300
Prerequisites:	MAT-130										
Catalog Description: (40 Word Limit)	Designed to provide a useful and working knowledge of data analytical skills involving interpretation and communication of descriptive measures, probability theory, correlation, interval estimation, hypothesis testing, simple linear regression, chi-square tests and ANOVA.										

	List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
1	Graphs and Charts	2			
2	Descriptive Statistics	6			
3	Probability Concepts	5			
4	Probability Distributions – Discrete and Continuous	6			
5	Sampling Error and Sampling Distributions	6			
6	Interval Estimation and Hypothesis Testing for Single Populations	6			
7	Chi-Square and Goodness-of-Fit test	6			
8	Analysis of Variance	5			
9	Regression Analysis	3			
10					
	TOTAL	45	0	0	0

EVALUATION							
QUIZZES	☑	**EXAMS**	☑	**ORAL PRES**	☐	**PAPERS**	☐
LAB WORK	☐	**PROJECTS**	☐	**COMP FINAL**	☐	**OTHER**	☐

COURSE MATERIALS		
TITLE:	Business Statistics: Communicating with Numbers	
AUTHOR:	Sanjiv Jaggia/Alison Kelly	
PUBLISHER:	McGraw Create	
VOLUME/EDITION/URL:	3rd Edition	
COPYRIGHT DATE:	2019	

TITLE:	RS Business Statistics Connect Code	
AUTHOR:	*10DAYPAY	
PUBLISHER:	McGraw Hill	
VOLUME/EDITION/URL:		
COPYRIGHT DATE:		

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Graphs and Charts	2	Identify and classify data according to data classification and data type. Create and interpret various graphs and chart appropriate for the data type and context of the given business situation.
Descriptive Statistics	6	Interpret and communicate various levels of data type involving population and sample data. Use the descriptive measures of mean, median, IQR, variance, and standard deviation to make appropriate business decisions. Find measures of central tendency and dispersion for both grouped and ungrouped data. Find covariance and correlation and interpret values.

Probability Concepts	5	Correctly apply and interpret the common laws of probability. Distinguish between independent and dependent events. Use correct counting techniques to solve problems, including probabilities associated with discrete and continuous distributions. Perform a total probability rule involving Bayes' theorem.
Probability Distributions – Discrete and Continuous	6	Identify and understand difference between discrete and continuous random variables. Describe probability distribution of discrete random variable. Describe and calculate relevant probabilities of binomial, Poisson and hypergeometric distributions. Calculate and interpret summary measures for both discrete and continuous variables. Consult library and internet career research sources to research details of a targeted career.
Sampling Error and Sampling Distributions	6	Recognize and implement various sampling techniques. Understand significance of the Central Limit Theorem. Understand properties of the sampling distribution of the sample mean.
Interval estimations and Hypothesis Testing for Single Populations	6	Calculate and interpret confidence intervals with population standard deviation known and unknown. Calculate and interpret confidence intervals for population proportions. Determine proper sample size required to estimate desired population parameters. Determine proper test statistics for population proportions. Determine null and alternative hypothesis. Work the steps of hypothesis testing using p-value approach and critical value approach.
Chi-Square and Goodness-of-Fit test	6	Describe chi-square and F distribution. Construct goodness-of-Fit test and Jarque-bera test for normality. Construct hypothesis test for population variance. Construct goodness-of-Fit test for multinomial experiment.
Analysis of Variance	5	Describe and understand concept and usefulness of ANOVA. Conduct and evaluate hypothesis test based on one and two-way ANOVA.
Regression analysis	3	Conduct hypothesis test for population correlation coefficient. Understand the limitations of correlation analysis. Estimate simple linear regression model and interpret the coefficients.
Insert New Line Above this Line		
	45	

COURSE OUTCOMES*	At the successful completion of this course, students will be able to:
• Create and interpret various graphs and charts appropriate for given data type and context, using appropriate measures.	
• Interpret and communicate analysis of the descriptive measures of mean, median, IQR, variance, and standard deviation for both grouped and ungrouped data.	
• Correctly apply the classic laws of probability, including Bayes' theorem, involving discrete and continuous distributions	
• Explain various sampling techniques and application of the Central Limit Theorem using confidence interval estimations.	
• Critically interpret statistical inference and hypothesis testing (including randomization tests) to solve common business problems involving sampling, estimation, hypothesis testing and ch-square.	
• Work with one-way ANOVA and bivariate distributions to make inferences based on regression analysis, including covariance, correlation.	

** Course Outcomes will be used in the Assessment Software for Outcomes Assessment. Limit to 3 - 5.*