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開課班級：食品碩士學程一A

授課老師：廖世義

學分數：3

課程大綱：

This course emphasizes both practice and theory. The theoretical part will explain the basic and advanced methods of statistical analysis and its commonly used algorithms in the field of business management, including discrete random variables (binomial distribution, hypergeometric distribution, and Boisson distribution). , Normal distribution (application of data standardization, normal distribution to find approximation of binomial distribution), sampling distribution (estimation and error, law of large numbers and central limit theorem, distribution of sample variance and chi-square distribution, t test, F test), Hypothesis test and confidence interval, test of two groups of samples, inference of proportion problem, chi-square test, analysis of variance (ANOVA, ANCOVA, MANOVA), linear regression (least squares method, logistic regression) complex correlation coefficient and complex regression Analysis (regression model evaluation and residual analysis, polynomial regression, hierarchical regression, mediation and interference mixed model), time series (weighted average method, exponential smoothing method, component decomposition method), no-matrix method verification, etc. Practical cases will use SPSS and Statistica statistical analysis software to operate on the computer, and the theoretical concepts will be manipulated through actual data, so that students can better understand the concepts and teach in a practical problem-oriented way.

outline:

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教學型態：

課堂教學

成績考核方式：

平時成績:40%
期中考:30%
期末考:30%
其它:Attendance: 15%
Weekly Homework: 25%
Midterm: Article reading



report and class personal study
notes 30% Final: Article
reading report or case study
report and classroom personal
study notes 30% %

本科目教學目標:

Through this course, students can understand the statistical methods and practical applications of business data analysis, and through the establishment of cross-industry data analysis processes and models, effective statistical methods can be evaluated. This course emphasizes both practice and theory. The academic part will explain the basis of statistical analysis. and advanced methods and their commonly used algorithms in various fields, including discrete random variables, normal distribution, sampling distribution, hypothesis testing and confidence intervals, testing of two groups of samples, inference of proportion problems, chi-square test, variance Mathematical analysis, simple linear regression, multiple correlation and multiple regression analysis. Practical cases will use SPSS and STATISTICA statistical analysis software to practice on the computer, and the theoretical concepts will be manipulated through actual data, so that students can better understand the concepts and teach in a practical problem-oriented way.

參考書目:

McClave, James T., P. George Benson, Terry Sincich Statistics for Business and Economics, 14th. Global Ed., Pearson Edu. 2022, New York.



課程進度表：

週次	起訖月日	授課單元(內容)	備註
第1週	9.12~9.19	The Science of Statistics, Types of Data, and Statistical Thinking	8日正式上課。8~12日課程加退選，轉學(系)生、復學生及延修生選課，雙主修、輔系申請，12日申辦抵免學分截止日
第2週	9.19~9.26	Methods for Describing Data Sets, Variation, SD, Outliers, Box Plots	
第3週	9.26~10.03	Probability Theory, Conditional Probability, Bayes' s Rule	28日(日)孔子誕辰紀念日/教師節(放假),29日(一)補假
第4週	10.03~10.10	Random Variables and Probability Distributions (Binomial, Poisson, Uniform, Hypergeometric, Normal, Standard Normal, Exponential, etc.)	29日成績優異提前畢業者提出申請截止日
第5週	10.10~10.17	Sampling & Distributions, Unbiased & Mini. Variance, the Central Limit Theorem	6日(一)中秋節(放假)，10日(五)國慶日(放假)
第6週	10.17~10.24	Inferences Based on a Single Sample: Estimation with Confidence Intervals	14日學生宿舍安全輔導暨複合式防災疏散演練。18日多益測驗
第7週	10.24~10.31	Inferences Based on a Single Sample: Tests of Hypotheses(T-test)	24日(五)補假，25日(六)光復暨古寧頭大捷日(放假)。
第8週	10.31~11.07	Inferences Based on Two Samples: Confidence Intervals and Tests of Hypotheses	30日校課程委員會
第9週	11.07~11.14	Midterm Exam & Personal Reports	3~9日期中考試
第10週	11.14~11.21	Design of Experiments(CRD, RBD) and Analysis of Variance (ANCOVA, MANOVA)	13日教務會議,16日教師期中成績上網登錄截止日
第11週	11.21~11.28	Categorical Data Analysis(Cross Table, Chi-Square test, McNemar)	
第12週	11.28~12.05	Factorial Factor Design, RMS (Response Surface Methodology)	24~28體育運動週。24日校園路跑。27日運動大會夜間開幕，28日運動大會活動，29日101週年校慶活動日，照常上班
第13週	12.05~12.12	Simple Linear Regression, Logistic Regression	



		Multiple Regression, Hierarchical Regression	
第14週	12.12~12.19	Model Building In Multiple Regression, Mediation & Moderation	12日申請停修課程截止日
第15週	12.19~12.26	Methods of Quality Improvement: Statistical Process Control	
第16週	12.26~1.02	Time Series: Descriptive Analyses, Models, and Forecasting	22日校務會議。25日行憲紀念日(放假)
第17週	1.02~1.09	Nonparametric Statistics	1日(四)開國紀念日(放假)
第18週	1.09~1.16	Final Exam & Personal Reports	5~11日期末考試，10~11日學生退宿