Syllabus (1st Semester, 2024)

Couse Information

Course Code	TIM50401	Course Title	Statistical Learning
Year/Semester	2022 / 1st Semester	School	Graduate School of Technology and Innovation Management
Class Time/Classroom	THU 19:00-21:45 (114-102)	Grading Type	Letter grade

Instructor Information

Instructor	Office	Tel.	E-mail	Office Hours
Jisoo Hur 허지수		010-3386-9838	jisoohur@unist.ac.kr	

Teaching Method

☑ Online ☐ Offline ☐ Online & Offline

Course Objectives & Description

Course Description

This course provides students with a comprehensive introduction to statistical learning techniques essential for effective decision-making in the business environment. Through a blend of theoretical concepts and practical applications, students will gain proficiency in analyzing and interpreting quantitative data. The course focuses on probability, descriptive statistics (central tendency, dispersion) and inferential statistics (T-test, ANOVA, chi-square test, correlation, and regression), equipping students with the skills needed to make informed business decisions. Critical thinking about the application of statistics in a business context will be a central theme throughout the course.

Learning Goals

- Students will be able to formulate a research question related to business management and assess the appropriateness of statistical analysis to answer it.
- Students will be able to describe the data they need to answer the research question and formulate hypotheses.
- Students will be able to perform basic statistical analyses and communicate those results effectively.

Course materials

- Textbook: "Essentials of Modern Business Statistics with Microsoft Excel (8th Edition)" by David R. Anderson, Dennis J. Sweeney, Thomas A. Williams et al. (required)
- Relevant materials posted on Blackboard or distributed in class
- Statistical software: R programming will be used; students are expected to be prepared with the software after the first class for participation in class exercises.

Grading

- Attendance (10%): Attendance will be taken during each lecture, contributing to 10% of the overall grade.
- Online Quizzes (30%; total 5; due dates vary but usually Thursday midnight): Online quizzes will be posted on the course website.
- Final Exam (30%): Take-home final exam will be administered online.
- Individual Assignments (30%; total 1): Students should choose a dataset (either provided or their own), analyze and interpret the data, and provide both descriptive and inferential statistics.

Contacts

Students with special needs should contact the instructor via email for necessary accommodations.

Grading

Attendance (%)	Midterm Exam (%)	Final Exam (%)	Quizzes (%)	Individual Assignments (%)
10.0		30.0	30.0	30.0
Reports (%)	Presentations (%)	Other (%)	Total (100%)	
			100.0	

Remarks

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Week	Contents
01	An Introduction to Business Statistics R installation and introduction
02	Descriptive Statistics: Tabular and Graphical Displays [Class Exercise] Descriptive Statistics
03	Descriptive Statistics: Numerical Measures [Class Exercise] Descriptive Statistics
04	Introduction to Probability Discrete Probability Distributions
05	Continuous Probability Distributions Sampling and Sampling Distributions
06	Interval Estimation
07	Hypothesis Tests [Class Exercise] Hypothesis testing
08	Inferences About Means with Two Populations [Class Exercise] Comparative analysis using statistical inferences with two samples
09	Inferences About Population Variances [Class Exercise] Hypothesis Testing about Population Variances
10	Test of Goodness of Fit and Independence [Class Exercise] Understanding and application of Chi-Square tests in business research
11	Analysis of Variance [Class Exercise] Application of ANOVA
12	Simple Linear Regression [Class Exercise] Application of simple regression analysis to model relationships in business data
13	Multiple Regression [Class Exercise] Application of multiple regression analysis to model relationships in business data
14	Individual Assignments
15	[NO Class] Memorial Day
16	Take-home Final Exam

Notes and Remarks

Textbook & Reference

Text/ Reference	Resource Type	Title	Author	Publisher	Year	Edition	ISBN/ISSN	Course Reserves Designation
Textbook	Book	Essentials of Modern Business Statistics with Microsoft Excel	David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Jeffrey D. Camm, James	Cengage Learning	2020	8	978–0357131626	

Remarks