



Nanchang University STAT 23: Business Statistics

Credit: 4

Contact Hours

This course is composed of 24 lecture sessions, 3 tutorial sessions and 9 office contact hours. Each lecture session takes 2 contact hours in length; each tutorial session takes 3 contact hours in length; There will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours) at the end of this term. This course has 72 contact hours in total.

Course Description

This course mainly talks about statistics in the area of business and economics, it meets today's business students with a balance of clarity and rigor, and applications incorporated from a diverse range of industries. A wide variety of data collection and analysis techniques are covered in this course. You can cultivate the abilities of developing statistical thinking, learning to assess the credibility and value of inferences made from data, and making informed business decisions.

Required Textbook

Textbook: Statistics for Business and Economics

Author: James T. McClave, P. George Benson

Edition: 12th Edition

Publisher: Pearson

Grading

- Participation 10%
- Assignment 20%
- 4 Quizzes 20%
- Midterm Exam 20%
- Final Exam 30%

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	



Course Schedule

The course has 24 class sessions in total. All sessions are 2 contact hours in length. At the end of this term, there will be a Q-A review session(3 contact hours) and Final Exam (3 contact hours).

Note: the course outline and required readings are subject to change.

Class 1:

Introduction to the course

Statistics, Data, and Statistical Thinking; Statistical Applications in Business

Collecting Data: Sampling and Related Issues

Class 2:

Methods for Describing Sets of Data

Quantitative Data; Numerical Measures of Central Tendency and Variability

Class 3:

Methods for Describing Sets of Data (Cont.)

Class 4:

Probability

Events, Sample Spaces, and Probability; Unions and Intersections

The related rules

Class 5:

Random Variables and Probability Distributions

Class 6:

Random Variables and Probability Distributions (Cont.)

Class 7:

Sampling Distributions

The concept and properties of a Sampling Distribution

Quiz 1

Class 8:

Inferences Based on a Single Sample: Estimation with Confidence Intervals

Identifying and Estimating the Target Parameter

Confidence Interval for a Population Mean: Normal (z) Statistic and Student's t -Statistic

Class 9:

Inferences Based on a Single Sample: Tests of Hypotheses

Test of Hypothesis about a Population Mean: Normal (z) Statistic



Class 10:

Inferences Based on a Single Sample: Tests of Hypotheses (Cont.)

Review of Chapter 6 to Chapter 7

Quiz 2

Class 11:

Inferences Based on Two Samples: Confidence Intervals and Tests of Hypotheses

Making Business Decisions: The Kentucky Milk Case—Part II (Covers Chapters 6–8)

Class 12:

Review of Chapter 1 to Chapter 8

Mid-term Exam

Class 13:

Design of Experiments and Analysis of Variance

Elements of a Designed Experiment and Completely Randomized Design: Single Factor

Multiple Comparisons of Means and Randomized Block Design

Class 14:

Categorical Data Analysis

Categorical Data and the Multinomial Experiment

Testing Category Probabilities: One-Way Table and Two-Way (Contingency) Table

Review of Chapter 9 to Chapter 10

Quiz 3

Class 15:

Simple Linear Regression

Fitting the Model: The Least Squares Approach and Model Assumptions

The Coefficients of Correlation and Determination

Class 16:

Multiple Regression and Model Building

Estimating and Making Inferences about the b Parameters

Evaluating Overall Model Utility and using the Model for Estimation and Prediction

Class 17:

Multiple Regression and Model Building (Cont.)

Quadratic and Other Higher-Order Models

Comparing Nested Models

Class 18:

Multiple Regression and Model Building (Cont.)

Residual Analysis: Checking the Regression Assumptions

Some Pitfalls: Estimability, Multicollinearity, and Extrapolation



Review of Chapter 11 to Chapter 12

Quiz 4

Class 19:

Methods for Quality Improvement: Statistical Process Control
Quality, Processes, and Systems
Statistical Control and the Logic of Control Charts

Class 20:

Methods for Quality Improvement: Statistical Process Control(Cont)
Diagnosing the Causes of Variation
Capability Analysis

Class 21:

Time Series: Descriptive Analyses, Models, and Forecasting
Descriptive Analysis: Index Numbers and Exponential Smoothing
Forecasting: Exponential Smoothing and Forecasting Trends: Holt's Method

Class 22:

Time Series: Descriptive Analyses, Models, and Forecasting(Cont.)
Measuring Forecast Accuracy: MAD and RMSE
Seasonal Regression Models and Autocorrelation and the Durbin-Watson Test

Class 23:

Nonparametric Statistics
Comparing Two Populations: Independent Samples and Paired Difference Experiment

Class 24:

Nonparametric Statistics (Cont)
Comparing Three or More Populations: Completely Randomized Design and Randomized Block Design

Attending Policy

Regular and prompt attendance is required. Under ordinary circumstances, you may miss two times without penalty. Each absence over this number will lower your course grade by a third of a letter and missing more than five classes may lead to a failing grade in the course. Arriving late and/or leaving before the end of the class period are equivalent to absences.

Policy on "Late Withdrawals"

In accordance with university policy, appeals for late withdrawal will be approved ONLY in case of medical emergency and similar crises.



Academic Honesty

Nanchang University expects all students to do their own work. Instructors will fail assignments that show evidence of plagiarism or other forms of cheating, and will also report the student's name to the University administration. A student reported to the University for cheating is placed on disciplinary probation; a student reported twice is suspended or expelled.

General Expectations:

Students are expected to:

- Attend all classes and be responsible for all materials covered in class and otherwise assigned;
- Complete the day's required reading and assignments before class;
- Review the previous day's notes before class and make notes about questions you have about the previous class or the day's reading;
- Participate in class discussions and complete required written work on time;
- Refrain from texting, phoning or engaging in computer activities unrelated to class during the class period;
- While class participation is welcome, even required, you are expected to refrain from private conversations during the class period.

Special Needs or Assistance

Please contact the Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material. Our goal is to help you learn, not to penalize you for issues which mask your learning.