

Course Description and Scope

This course introduces the concepts and methods of statistical inferences: the process of inferring unknowns under uncertainty. Students of this course will also learn programming skills in the R environment for basic statistical analyses.

This course consists of three main sections. Section 1 covers elements of probability models. Section 2 covers the basic theories in statistical inferences. Section 3 introduces the basic of two powerful and widely used analytic tools: regression and simulation analysis. Each weekly topic will be supplemented with relevant computer applications in the R environment.

Course Objectives

By the end of this course, you (as a student) should be able to:

1. Explain the concept of probabilities & statistical inferences
2. Run simulation and regression analyses
3. Conduct statistical analysis using R and interpret the results

Course Assessment

Component	Marks	Individual/Group
Individual participation	10%	Individual
Computer Quizzes	60%	Individual
E-Learning and tests	20%	Individual
Presentation	10%	Individual
Total	100	

Textbooks

Keller G (2014). Statistics for Management and Economics, 8th ed. Cengage. ISBN 13: 978-0-324-56949-0. NTU Business Library Call Number: HD30.215.K29 2008.

Jaggia S, Alison Kelly (2019). Business Statistics – Communicating with Numbers, 3rd ed. McGraw-Hill International. ISBN 13: 978-1-260-28837-7.

Weiers RM (2008). *Introduction to Business Statistics, 6th ed.* South Western Cengage Learning. ISBN 13: 978-0-324-38143-6. NTU Business Library Call Number: HF1017.W418 2008.

DeGroot, M.H., Mark J. Schervish (2012). *Probability and statistics, 4th ed.* Addison Wesley. ISBN-13: 978-0-321-50046-5.

Wooldridge JM (2009). *Introductory econometrics : a modern approach, 4th ed.* South-Western Cengage Learning. ISBN: 978-0-324-58162-1. NTU Business Library. Call Number: HB139.W913i 2009.

Proposed Weekly Schedule

Week	Topic
1	Probability basics
2	Counting methods, Conditional probability
3	Random variables (RV) and distribution function
4	Expectations
5	Bivariate distributions and correlation
6	Sampling distributions
7	Large-sample theories
	Recess Week
8	Confidence intervals
9	Hypothesis testing
10	Regression 1
11	Regression 2
12	Simulation analysis
13	Revision