國立東華大學

# 教學計劃表　Syllabus

| 課程名稱(中文)<br>Course Name in Chinese | 統計學(一)AB | | | 學年/學期<br>Academic Year/Semester | | 105/1 |
|---|---|---|---|---|---|---|
| 課程名稱(英文)<br>Course Name in English | Statistics（I） | | | | | |
| 科目代碼<br>Course Code | IB__2140AB | 系級<br>Department & Year | 學二 | 開課單位<br>Course-Offering Department | | 資訊管理學系 |
| 修別<br>Type | 學程 Program | 學分數/時間<br>Credit(s)/Hour(s) | | 3.0/3.0 | | |
| 授課教師<br>Instructor | /林金龍 | | | | | |
| 先修課程<br>Prerequisite | | | | | | |

## 課程描述　Course Description

H. G. Wells, an English author and historian, predicted over 100 years ago that quantitative reasoning will be as necessary
for effective citizenship as the ability to read. He could not have been more correct especially for students
in business and economics today who need to acquire the knowledge to organize, analyze, extract and then transform data to present the information. These basic statistical skills and methods are
essential for making proper business and personal decisions.

This course is the first semester of a one-year undergraduate statistics.  It aims at equipping the students with
the ability to describe data sets using graphs and numerical summaries, to use probability rules in problem solving, to
supply inferential statistical techniques in decision making for business and real life situations.
Topics studied include descriptive measures for empirical data, theory of probability, probability distributions,
sampling distributions of statistics from large and small samples, estimation theory, hypothesis testing, correlation,
and regression.

One can never really master statistics without getting his/her
hand dirty with real data. Analyzing real data using some statistical package is considered
as an essential part of this course. I shall give empirical data
analysis during the lectures and assign computer-related home work.
For this purpose, I shall teach and ask students to learn and use
R, a powerful statistical and yet free package. It can be
downloaded from

http://www.r-project.org

## 課程目標　Course Objectives

介紹統計推論的概念與各種統計分析方法，引導學生了解統計學在管理決策等方面之應用

| 系專業能力<br><br>Basic Learning Outcomes | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.'s Education Objectives |
|---|---|

| | | |
|---|---|---|
| A | 具備經濟學、會計學、統計學及數學的基礎能力Basic knowledge of the financial theory Economics, accounting, statistical and mathematical | ● |
| B | 具備財務金融基本學理Understanding of the development of the financial discipline | ● |
| C | 具備運用財務金融學理進行分析能力Basic knowledge of financial theory analysi | ● |
| D | 具備資料整理、書面呈現或口頭報告之能力Basic knowledge of documentation and presentation skill | ● |
| E | 具備財經時事基本分析能力Capabilities for financial analysis of current affairs | |
| F | 具備電腦程式運算及應用基本能力Ability of computer programs, algorithms and applications | ● |
| G | 具備英語閱讀溝通協調等基本能力English reading ability of communication and coordination | |

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

## 授 課 進 度 表 Teaching Schedule & Content

| 週次Week | 內容 Subject/Topics | 備註Remarks |
|---|---|---|
| 1 | Introduction to statistics and R | |
| 2 | Describing data frequency tables, frequency distributions and graphic presentation | |
| 3 | Describing data: numerical measure | |
| 4 | Describing data: displaying and exploring data | |
| 5 | A survey of probability concepts (1/2) | |
| 6 | A survey of probability concepts (2/2) | |
| 7 | Discrete probability distributions (1/2) | |
| 8 | Discrete probability distributions (2/2) | |
| 9 | 期中考試週 Midterm Exam | |
| 10 | Sampling methods and the central limit theorem (1/2) | |
| 11 | Sampling methods and the central limit theorem (2/2) | |
| 12 | Estimation and confidence intervals (1/2) | |
| 13 | Estimation and confidence intervals (2/2) | |
| 14 | One-sample tests of hypothesis (1/2) | |
| 15 | One-sample tests of hypothesis  (2/2) | |
| 16 | Two-sample tests of hypothesis (1/2 | |
| 17 | Two-sample tests of hypothesis (2/2) | |
| 18 | 期末考試週 Final Exam | |

## 教 學 策 略  Teaching Strategies

☑ 課堂講授 Lecture          ☐ 分組討論Group Discussion          ☐ 參觀實習 Field Trip

☑ 其他Miscellaneous:分析實際統計資料

## 學期成績計算及多元評量方式 Grading & Assessments

| 配分項目 Items | 配分比例 Percentage | 多元評量方式 Assessments | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 測驗 會考 | 實作 觀察 | 口頭 發表 | 專題 研究 | 創作 展演 | 卷宗 評量 | 證照 檢定 | 其他 |
| 平時成績 General Performance | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 期中考成績 Midterm Exam | 30% | ✓ | | | | | | | | | |
| 期末考成績 Final Exam | 40% | ✓ | | | | | | | | | |
| 作業成績 Homework and/or Assignments | 30% | | ✓ | | | | | | | | 含上課出席率 |
| 其他 Miscellaneous (＿＿＿＿＿) | | | | | | | | | | | |

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目（書名、作者、書局、代理商、說明）
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Textbook:
D. A. Lind, W. G. Marchal and S. A. Wathen (2014),
Statistical Techniques in Business and Economics, 16th ed. New York: McGraw Hill
(Imported by Hwa Tai Publishing)

Reference books:
 Daniel Navarro (2014), Learning Statistics with R: A tutorial for psychology students and other beginners
(Version 0.4) available at :\\
http://health.adelaide.edu.au/psychology/ccs/teaching/lsr/
 Darrell Huff (1954), How to lie with statistics, New York: W.W. Norton & Company

課程教材網址（教師個人網址請列在本校內之網址）
Teaching Aids & Teacher's Website (Personal website can be listed here.)

faculty.ndhu.edu.tw/~jlin

其他補充說明 (Supplemental instructions)