



## 教學計劃表 Syllabus

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| 課程名稱(中文)<br>Course Name in Chinese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 統計學(一)AC                         |                             | 學年/學期<br>Academic Year/Semester | 106/1                              |
| 課程名稱(英文)<br>Course Name in English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Statistics ( I )                 |                             |                                 |                                    |
| 科目代碼<br>Course Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | IB_2140AC                        | 系級<br>Department & Year     | 學二                              | 開課單位<br>Course-Offering Department |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                  |                             |                                 |                                    |
| <p>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.</p> <p>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.</p> <p>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</p> <p><a href="http://www.r-project.org">http://www.r-project.org</a></p> |                                  |                             |                                 |                                    |
| 課程目標 Course Objectives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                  |                             |                                 |                                    |
| 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<br>Items                    | 配分比例<br>Percentage | 多元評量方式 Assessments |          |          |          |          |          |          |        |
|----------------------------------|--------------------|--------------------|----------|----------|----------|----------|----------|----------|--------|
|                                  |                    | 測驗<br>會考           | 實作<br>觀察 | 口頭<br>發表 | 專題<br>研究 | 創作<br>展演 | 卷宗<br>評量 | 證照<br>檢定 | 其他     |
| 平時成績 General Performance         |                    |                    |          |          |          |          |          |          |        |
| 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<br>(_____)      |                    |                    |          |          |          |          |          |          |        |

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](http://faculty.ndhu.edu.tw/~jlin)

其他補充說明 (Supplemental instructions)