



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	線性代數		學年/學期 Academic Year/Semester	114/2	
課程名稱(英文) Course Name in English	Linear Algebra				
科目代碼 Course Code	DS_10040	系級 Department & Year	學一	開課單位 Course-Offering Department	大數據科學國際學士班
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/周君彥				
先修課程 Prerequisite					
課程描述 Course Description					
<p>The course is to learn applications of linear algebra for students not major in mathematics. The focus is on applications, and concepts will be clarified to a reasonable degree whenever touched. The line of teaching mainly follows the book "Linear Algebra and Its Applications, 4th edition by Gilbert Strang.</p> <p>Students of this course are required to read the book before class according to the syllabus. The main line of teaching is as follows.</p> <p>Chapter 1. Matrices and Gaussian Elimination Chapter 2. Vector Spaces Chapter 3. Orthogonality Chapter 4. Determinant Chapter 5. Eigenvalues and Eigenvectors Chapter 6. Positive Definite Matrices Chapter 7. Computations with Matrices Chapter 8. Linear Programming and Game Theory</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	Matrices and Gaussian Elimination, Vector Spaces (1/4)				
2	Matrices and Gaussian Elimination, Vector Spaces (2/4)				
3	Matrices and Gaussian Elimination, Vector Spaces (3/4)				
4	Matrices and Gaussian Elimination, Vector Spaces (4/4)				
5	Orthogonality (1/2)				
6	Orthogonality (2/2)				
7	Determinant, Eigenvalues and Eigenvectors (1/4)				
8	Determinant, Eigenvalues and Eigenvectors (2/4)				
9	期中考試週 Midterm Exam				

10	Determinant, Eigenvalues and Eigenvectors (3/4)	
11	Determinant, Eigenvalues and Eigenvectors (4/4)	
12	Positive Definite Matrices, Computations with Matrices (1/4)	
13	Positive Definite Matrices, Computations with Matrices (2/4)	
14	Positive Definite Matrices, Computations with Matrices (3/4)	
15	Positive Definite Matrices, Computations with Matrices (4/4)	
16	Linear Programming and Game Theory (1/2)	
17	期末考試週 Final Exam	
18	Linear Programming and Game Theory (2/2)	

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: paid on what is taught, not on taking notes. Exercises and sometimes the to-be-filled version of solution for basic exercises are also posted in

教學創新自評 Teaching Self-Evaluation

創新教學 (Innovative Teaching)

- 問題導向學習 (PBL)
 團體合作學習 (TBL)
 解決導向學習 (SBL)
- 翻轉教室 Flipped Classroom
 磨課師 Moocs

社會責任 (Social Responsibility)

- 在地實踐 Community Practice
 產學合作 Industry-Academia Cooperation

跨域合作 (Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching
 跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other: Encourage the students to think clearly, write clearly, and say things clearly to have a really serious study of the course.

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(含出席) General Performance (Attendance Record)	0%	✓							See Grading & Assessments Supplemental instructions
期中考成績 Midterm Exam	40%	✓							See Grading & Assessments Supplemental instructions
期末考成績 Final Exam	40%	✓							See Grading & Assessments Supplemental instructions
作業成績 Homework and/or Assignments	20%		✓						See Grading & Assessments Supplemental instructions
其他 Miscellaneous (See Grading & Assessments Supplemental instructions)									

評量方式補充說明

Grading & Assessments Supplemental instructions

Anyone found cheating in any exam or quiz will get an F for this course.
 Anyone who doesn't attend the final exam will get an F for this course.
 Under the premise of no cheating and attending the final exam, semester score will be the highest of the following three counting methods A, B, C.
 Method A: homework 20%, midterm and final 40% each, no bonus points
 Method B: midterm 40%, final 60%, no bonus points
 Method C: square roots of [(Method A + bonus points)*60], where bonus points are earned by quizzes and correct answers during class time and other academic ways.

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: Linear Algebra and Its Applications, 4ed' by Gilbert Strang
 Reference: Linear Algebra 4ed, S. H. Friedberg et al

課程教材網址(含線上教學資訊, 教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.
 Personal website can be listed here.)

line group

其他補充說明 (Supplemental instructions)

【Contact me using my school e-mail address: chouy@gms.ndhu.edu.tw】 Although I do use line group to help teaching, I personally think accepting a line friend is a very private thing. Therefore, there are always students who try to add me as a line good friend in private, I will not accept the invitation unless you already have enough academic contact with me by asking questions in office hour or in line group. Also, be aware that every message you sent before becoming line friends will not be read even after being line friends. Thus, please contact me using my school e-mail address: choucy@gms.ndhu.edu.tw which I am required to read every working day. Thank you for your cooperation and good luck on your study.