## ③国立束華大學 教學計劃表 Syllabus

課程 Course Nat	名稱(中文) me in Chinese	時間序列分析與	1預測		學年/學期 Academic Year/Sem	112/2				
課程 Course Na	名稱(英文) me in English	Time series analysis and forecasting								
科 Cour	·目代碼 rse Code	系級 Department & Year インク 				次貝	資訊管理學系			
	修別 Type	選修 Elective								
授 Ins	課教師 tructor	/張漢利								
先 Prer	修課程 equisite									
課程描述 Course Description										
in the analysis of time-dependent data and the application of forecasting techniques. The curriculum covers a broad spectrum of topics, from basic statistics and visualization to advanced forecasting methods, including ARIMA, seasonality forecasting, and exponential models. It also integrates cutting -edge approaches using machine learning, deep neural networks, and convolutional models for time series analysis. The course is punctuated with practical sessions for applying learned techniques, a midterm project to assess comprehension and application, and a final presentation to showcase students' forecasting projects. Scheduled breaks and a consultation week are included to enhance learning outcomes and address individual queries.										
課程目標 Course Objectives										
The course aims to introduce the essential knowledge related to time series analysis and forecasting, such as statistics, regression analysis, exponential smoothing, ARIMA modeling, and machine learning. By the end of the course, the students are expected to develop practical skills to analyze time series data effectively and be able to model forecasting problems and anomaly detection in time series										
系專業能力 Basic Learning Outcomes						課: Cor: Co	課程目標與系專業能 力相關性 Correlation between Course Objectives and Dept.'s Education Objectives			
A A Creati	備創造與思考能力 ivity and thinking	、服務精神、團隊 spirit of serv	合作以及國際觀N vice、teamwork	urture abi and intern	lity regarding		•			
B 培養具 inform	備資訊專業知識與 nation	友能Nurture profe	essional abilit	y and skil	1 regarding		0			
C 培養具 inform	-備資訊科技與管理領 nation technology	領域之知識整合應別 and management	₹●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●	ntegrated	ability regarding		•			
日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日	培養具備解決問題之資訊剖析、組織、整合、應用以及表達的能力Nurture ability of information analysis, organization, integration, application, and expression regarding problem solving									
E 培養具 resear	E 培養具備獨立研究、領導智能與資訊創新的能力Nurture ability regarding independent essearch, leadership and information innovation									
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	1 Orientation									

2	Handling date and time data						
3	Handling missing data						
4	Exploratory data analysis						
5	Basic forecasting						
6	Statistical methods I						
7	Statistical methods II	Statistical methods II					
8	Holiday						
9	期中考試週 Midterm Exam						
10	Machine learning for time series						
11	Deep neural networks						
12	Recurrent neural networks						
13	Convolutional models						
14	Paper presentation						
15	Consultation week						
16	Final presentation						
17	Holiday						
18	18 Tentative teaching						
教 學 策 略 Teaching Strategies							
✓ 課堂講授 Lecture ✓ 分組討論Group Discussion ● 參觀實習 Field Trip							
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	學習(SBL)					
→ → → → → → → → → → → → → → → → → → →							
社會責任(Social Responsibility)							
▲ 査地實踐Community Practice ▲ 産學合作 Industy-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:							

學期成績計算及多元評量方式 Grading & Assessments									
配分項目 配分比例 多元評量方式 Assessments									
Items	Percentage	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	10%								
期中考成績 Midterm Exam	15%								
期末考成績 Final Exam	35%								
作業成績 Homework and/or Assignments	25%								
其他 Miscellaneous ()	15%								
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.)									
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.)									
其他補充說明 (Supplemental instructions)									