

Course Information	
Course title	Application of Big Data System
Semester	102-2
Designated for	COLLEGE OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE GRADUATE INSTITUTE OF NETWORKING AND MULTIMEDIA
Instructor	STEVEN LIAO
Curriculum Number	CSIE5323
Curriculum Identity Number	922 U4170
Class	
Credits	3
Full/Half Yr.	Half
Required/ Elective	Elective
Time	Tuesday ABC
Remarks	The upper limit of the number of students: 106.
Table of Core Capabilities and Curriculum Planning	Table of Core Capabilities and Curriculum Planning
Course Syllabus	
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Course Description	<p>隨著行動，社群，雲端應用的成熟發展，巨量資料(Big Data)已成為下一波提升所有產業的生產力與創新性的重要元素。本課程將從分析模式、系統模式、商業模式等面向探討各行各業之巨量資料應用系統。因 LAS (Large application Systems 如 Facebook，Android，Google Search) 是現今重要趨勢，其強調具備 ecosystem 及平台的系統，我們希望此課以大系統為主，作出國際級真正的 Large Application Systems，取代小打小鬧的台灣軟體走向及 one-off apps。本課程</p>

		先從分析模式來培養懂 data science 的平臺架構師、再從系統模式來訓練有大開大合能力的 cloud programmers、最後再從商業模式的實例讓學生具備有走的出去的價值及能力 (entrepreneurs)。LAS 需要以上有整合系統，及垂直綜觀產業能力的師資一起願意開課來幫助帶領台灣軟體能量到新的層次。
Course Objective		本課程的目標在於讓修課同學：培養同學全面掌握巨量資料應用系統之基本能力，鼓勵同學投入發展各行各業的巨量資料創新應用系統，有機會與國際級企業家合作落實創新構想於實際企業案例。
Course Requirement		大二及以上
Office Hours		
References		
Designated reading		"Mining of Massive Datasets", http://infolab.stanford.edu/~ullman/mmds/book.pdf
Grading		
Progress		
Week	Date	Topic
第 1 週	2/18	Introduction and review of the Economic value for Big Data.
第 2 週	2/25	Global trend in the development of big data applications.
第 3 週	3/04	Introduction of digital analytics and strategy: decision model and prediction model, data mining and machine learning.
第 4 週	3/11	Internet: web measurement and analytics
第 5 週	3/18	Social Networks: connections, distribution, segmentation, modeling and visualization
第 6 週	3/25	Online recommendation: item hierarchy, attribute & content-based, collaborative filtering, social & interest graph-based, model based
第 7 週	4/01	Integration and strategy framework
第 8 週	4/08	Data warehousing, ETL, OLAP, real-time reporting, etc.
第 9 週	4/15	Midterm Exam

第 10 週	4/22	MPP, Hybrid row-column, in-memory cache/database.
第 11 週	4/29	MapReduce, CSP/BSP, etc.
第 12 週	5/06	Customer acquisition (search engine optimization, paid search, e-mail marketing)
第 13 週	5/13	AdWords, search & display
第 14 週	5/20	Mobile marketing & location based marketing
第 15 週	5/27	Social media Marketing, content Marketing & building communities
第 16 週	6/03	Success stories from industry, healthcare, retail/e-commerce, finance, etc.
第 17 週	6/10	Final presentation & competition by groups