

課程資訊 (Course Information)					
科號 Course Number	10720COM 530600	學分 Credit	3	人數限制 Class Size	80
中文名稱 Course Title	社群網路				
英文名稱 Course English Title	Social Networks				
任課教師 Instructor	李端興(LEE, DUAN-SHIN) <i>more information</i>				
上課時間 Time	M7M8R4	上課教室 Room	DELTA台達103		
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此科目對應之系所課程規畫所欲培養之核心能力 Core capability to be cultivated by this course	<ul style="list-style-type: none"> <li>■ 發掘、分析、解決問題與獨立研究之能力 (40%) The ability to discover, analyze, solve problems and to research independently. (40%)</li> <li>□ 通訊科技整合與創新之能力 The ability to integrate and innovate communication technology.</li> <li>■ 學習新知識與技術之能力 (40%) The ability to learn new knowledge and techniques. (40%)</li> <li>■ 良好溝通、表達與外語能力 (10%) The ability to communicate and express oneself effectively and to be proficient in foreign languages. (10%)</li> <li>■ 具團隊精神及遵守專業倫理 (10%) The ability to possess team spirit and to comply with professional ethics. (10%)</li> </ul>				
課程簡述 (Brief course description)					
<p>The past decade has seen a growing interest in the complex “connectedness” of modern society. At the heart of this fascination is the idea of a network. How we make decisions to adopt a new idea, to invest by buying/selling security stocks, or even to vote for a specific campaign candidate is influenced by the people that we are linked with. How people behave is affected by incentives and by their expectations about the behaviors of the people with whom they are linked. In this course the students will be exposed to an interdisciplinary body of knowledge in sciences, engineering, social sciences, economics, business, political science and medical health studies. The goal of this course is to show how social network is applied to the study of economics, political science, and medical health study.</p>					
課程大綱 (Syllabus)					
<p>Course keywords: social networks, economics, graph theory, game theory, network science</p> <p>1. Overview of the course The past decade has seen a growing interest in the complex “connectedness” of modern society. At the heart of this fascination is the idea of a network. How we make decisions to adopt a new idea, to invest by buying/selling security stocks, or even to vote for a specific campaign candidate is influenced by the people that we are linked with. How people behave is affected by incentives and by their expectations about the behaviors of the people with whom they are linked. In this course the students will be exposed to an interdisciplinary body of knowledge in sciences, engineering, social sciences, economics, business, political science and medical health studies. The goal of this course is to show how social network is applied to the study of economics, political science, and medical health study.</p> <p>2. Subjects covered in this course</p>					

Students will be taught the state-of-the-art research results on social networks, including Diffusion of opinions, information, rumors and etc.

Application of social networks to the study of economics, markets, and stock trading. Application of social networks to the study of voting, election and political behavior

### 3. Topics covered

Representing and measuring networks

Empirical background on social, economic networks and health

Strategic Network Formation

Diffusion through networks

Learning and networks

Decisions, behavior, and games on networks

Networked markets

Game-theoretic modeling of networks

Allocation rules and cooperative games

Voting and election

### 4. Textbook

David Easley and Jon Kleinberg, "Networks, Crowds, and Markets: Reasoning about a Highly Connected World," Cambridge University Press, 2010.

### 5. Reference books

Serge Galam, "Sociophysics a Physicist's Modeling of Psycho-political Phenomena," Springer, 2012.

Matthew O. Jackson, "Social and Economic Networks," Princeton University Press, 2008.

Ahmad K. Naimzada, Silvana Stefani and Anna Torriero, "Networks, Topology and Dynamics Theory and

Applications to Economics and Social Systems," Springer, 2009.

### 6. Grading Policy

Homework (30%)

Midterm exam (20%)

Final (30%)

Class participation (20%)