IM 7011: Information Economics (資訊經濟)
Spring 2018 (106-2)

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In the field of Information Economics (or Economics of Information), people use economic tools to study the value and impact of information. Information is not only important in the information industry; it has critical impacts in almost all business activities. In this course, we will study how to apply economic modeling to rigorously analyze information-related issues, especially information asymmetry. Applications that we will study lie in marketing, supply chain management, information systems, among others. Students will be required to read textbooks as well as some academic papers. This is a course teaching students how to do academic research with a specific research method. To comfortably take this course, one is suggested to have adequate background in calculus, nonlinear optimization, game theory, and probability.

This is an elective course offered in the Department of Information Management in National Taiwan University. The target "customers" of this course are graduate and senior students, though junior students may still enroll in this course. In most cases, all students who want to enroll in or audit this course are welcome. This course is taught in Chinese.

Basic information

Instructor.

- Ling-Chieh Kung (孔令傑). E-mail: lckung(AT)ntu.edu.tw.
- Office: Room 413, Management Building 2. Tel: 02-3366-1176.
- Office hour: by appointment.
- http://www.im.ntu.edu.tw/~lckung/.

Teaching Assistant. 陳昀靖: r06725004(AT)ntu.edu.tw.

Lectures. 9:10 am-12:10 pm, Friday in Room 102, Management Building II.

Prerequisites.

- Students need to know the basic ideas of calculus and probability.
- Knowledge about convex optimization and game theory will be helpful.

References.

- (SV) *Information Rules* by C. Shapiro and H. Varian.
- (LD) *Freakonomics* by S. Levitt and S. Dubner.
- (CT) *Contract Theory* by P. Bolton and M. Dewatripont.
- (G) *Game Theory for Applied Economists* by R. Gibbons.

On-line Resources.

- To check grades: CEIBA.
- To download or link to materials: http://www.im.ntu.edu.tw/~lckung/courses/IE106-2/.
- To watch lecture videos: https://www.coursera.org/learn/gabr.
- To discuss: https://piazza.com/ntu.edu.tw/spring2018/im7011.

Grading

Breakdown.

- Not dropping this course: 10%
- Quiz: 5%.
- Pre-lecture problems: 10%.
- Paper summaries: 15%.
- Case studies: 15%.
- Final project: 35%.
- Class participation: 10%.

Conversion rule. The final letter grades will be given according to the following conversion rule:

Letter	Range	Letter	Range	Letter	Range	Letter	Range	Letter	Range
F	$[0, 60)$	C$-$	$[60, 63)$	C	$[63, 67)$	C+	$[67, 70)$	B$-$	$[70, 73)$
B	$[73, 77)$	B+	$[77, 80)$	A$-$	$[80, 85)$	A	$[85, 90)$	A+	$[90, 100]$

Tentative schedule

Week	Date	Lecture	Suggested reading
		Module 1: Incentives	
1	3/2	Overview and review of optimization	SV Ch. 1, LD
2	3/9	Review of game theory	G Chs. 1–2
3	3/16	Channel selection under competition	McGuire and Staelin (1983)
4	3/23	Supply chain coordination	Pasternack (1985)
5	3/30	In-store referrals and sharing economy	Kung et al. (2018), Kung and Zhong (2017)
6	4/6	No class: spring recess	N/A
7	4/13	***Case study 1***	N/A
8	4/20	***Workshop on Information Economics***	N/A
		Module 2: Information	
9	4/27	The screening theory	BD Sec. 2.1
10	5/4	Partner selection about forecasting accuracy	Kung and Chen (2014)
11	5/11	The signaling theory	BD Sec. 3.1
12	5/18	Revenue sharing for medical treatments	Chen et al. (2018)
13	5/25	***Case study 2***	N/A
		Module 3: Final Project	
14	6/1	Project proposal discussion	N/A
15	6/8	Review and preview	N/A
16	6/15	***Final project presentations (1)***	N/A
17	6/22	***Final project presentations (2)***	N/A
18	6/29	No class: Thanks to flipped classroom	N/A

Policies

Flipped classroom. Before most lectures, the instructor will upload videos containing some materials to be discussed in that lecture. The total length of those videos for one lecture will be around 90 to 120 minutes. Students must find their own time to watch the videos before the lecture. During lectures, we answer students' questions regarding materials in the videos, give examples, do on-site exercises and discussions, and introduce further materials. For most problems assigned in lectures, students form teams to discuss about and solve them.

Pre-lecture problems. For each lecture that has lecture videos, there will also be a set of pre-lecture problems. While most pre-lecture problems are for you to practice by yourselves, one problem requires your submission. It should be submitted as hard copies at the beginning of each lecture. Each student needs to submit her own work. Copying will result in severe penalties for everyone involved.

Teams. Students must form teams to do lecture problems, paper summaries, case studies, and the final project. One's teams for these activities can be different. For lecture problems, each team should have two to three students. One may have different teammates in different weeks. The allowed sizes of teams for other activities will be determined after the class roster is finalized.

Attendance and class participation. We encourage class participation and include it in evaluating each student. During lecture time, students are more than welcome to ask or answer questions and provide comments. One gets good participation grades if her/his participation enhances the learning experiences of the class or she simply impresses the instructor with her passion and diligence. We will use Piazza to do after-class on-line discussions. When one has any question, she/he is encouraged to post the question on the forum so that the whole class can benefit from the discussions. Of course, one may still choose to have private conversations with the instructor. We do not require one to attend all the lectures. If you have something to do, feel free to drop a class.

Office hour. You are welcome to have any kind of discussions with the instructor. You may ask him to clarify some concepts, give suggestions on case studies, or discuss the final project. Discussions not related to this course are also welcome. If you do not want to come in the designated time, feel free to send him an e-mail to schedule a meeting.

Paper summaries and case studies Students will form teams to write summaries for academic papers. Details will be during the semester. For each case study, a topic will be assigned, and each team constructs its own models, conduct its own analysis, and generate its own findings. A written report is required for each case study.

Projects. Students will form teams to do a final project by applying the techniques learned in this course. For the final project, a direction will be assigned, and each team conducts its own research by defining its own research questions. All or some teams will make an oral presentation and submit a report. All teams must submit a report.

References

Chen, Y.-H., L.-C. Kung, J.-Y. Yu, H.-J. Tsai, Y. J. Wang. 2018. Impact of management type on the adoption of revenue sharing for medical treatments between equipment vendors and hospitals. Working paper, National Taiwan University.

Kung, L.-C., Y.-J. Chen. 2014. Impact of reseller's and sales agent's forecasting accuracy in a multilayer supply chain. *Naval Research Logistics* **61**(3) 207–222.

Kung, L.-C., P.-Y. Sun, C.-Y. Huang, W.-C. Lee. 2018. Why promoting for competitors? Online in-store referral for products with heterogeneous quality. Working paper, National Taiwan University.

Kung, L.-C., G.-Y. Zhong. 2017. The optimal pricing strategy for two-sided platform delivery in the sharing economy. *Transportation Research Part E* **101** 1–12.

McGuire, T. W., R. Staelin. 1983. An industry equilibrium analysis of downstream vertical integration. *Marketing Science* **2**(1) 115–130.

Pasternack, B. 1985. Optimal pricing and return policies for perishable commodities. *Marketing Science* **4**(2) 166–176.