

## **COURSE OUTLINE**

<b>Course Code / Title</b>	:	HE3035 Economics of Digital Platforms
<b>Pre-requisites</b>	:	HE1001 Microeconomics Principles/ HE5091 Principles of Economics/ AB0901 Principles of Economics: A Singapore Perspective (with at least a B+)
<b>No. of AUs.</b>	:	3
<b>Contact Hours</b>	:	39 hours (2 hours lecture + 1 hour tutorial)

### **Course Aims**

Multi-sided platform businesses like those run by Alibaba, Amazon, Apple, Facebook, Google and Tencent dominate the current economy. These businesses raise many new economic and strategic questions that policymakers and market participants are grappling with. Yet, students studying economics currently do not learn about the unique economic features and issues pertaining to these multi-sided businesses. This module will provide such an analysis, making use of the tools of basic game theory and industrial organization to do so. Topics include (i) the economic features of multi-sided platforms (e.g., definitions of platforms, network externalities, pricing and competition between platforms); (ii) strategic issues faced by platforms (e.g., launching, platform design, leakage, revenue model); (iii) emerging policy issues (e.g., platform mergers, self-preferencing, abuse of dominance).

### **Intended Learning Outcomes (ILO)**

- Understand what makes digital multi-sided platforms different from other businesses.
- Analyze the implications of pricing and non-pricing platform strategies in business and regulatory settings.
- Understand business strategy and regulatory policy issues related to multi-sided platforms, and apply the knowledge as an industry practitioner in multi-sided platform businesses.

### **Course Content**

- Theme 1: Pricing and competition in two sided platforms. Topics include: basic industrial organization preliminaries; how network externalities change the traditional economic

insight; the role of user expectations and platform competition; price structure and two-sided pricing; platform competition, multihoming and competitive bottlenecks; market power and incumbency advantages

- Theme 2: Key strategic issues faced by platforms. Topics include: marketplace vs. reseller tradeoff; issues on becoming a platform such as launching problem, penetration pricing, first-party product, product-to-platforms; platform design and governance; platform leakage: implications and preventions; rating and review systems; steering and recommendations
- Theme 3: Government regulations and policies. Topics include: classic antitrust issues in new lights; market power, merger and acquisitions; vertical restraints; distorting on-platform competition; platform first-party entry self-preferencing; abuse of data advantages

### **Course Assessment (To be specific)**

Class Participation	: 10%
Group Project	: 25%
Quizzes	: 15%
Final Examination	: 50%
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<b>Total</b>	<b>100%</b>

### **Reading and References**

The reading-materials listed here are the limitations readings only and should only be used for guidelines. I will include many more materials from other sources in the lecture notes.

- 1) Armstrong, M. (2006). Competition in two-sided markets. The RAND journal of economics, 37(3), 668-691.
- 2) Armstrong, M., & Wright, J. (2007). Two-sided markets, competitive bottlenecks and exclusive contracts. Economic Theory, 32, 353-380.
- 3) Crémer, J., De Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission.
- 4) Hagiu, A., & Spulber, D. (2013). First-party content and coordination in two-sided markets. Management Science, 59(4), 933-949.

- 5) Hagiu, A., & Wright, J. (2015). Multi-sided platforms. *International Journal of Industrial Organization*, 43, 162-174.
- 6) Hagiu, A., & Wright, J. (2015). Marketplace or reseller? *Management Science*, 61(1), 184-203.
- 7) Hagiu, A., Jullien, B., & Wright, J. (2020). Creating platforms by hosting rivals. *Management Science*, 66(7), 3234-3248.
- 8) Rochet, J. C., & Tirole, J. (2006). Two-sided markets: a progress report. *The RAND journal of economics*, 37(3), 645-667.
- 9) Rysman, M. (2009). The economics of two-sided markets. *Journal of Economic Perspectives*, 23(3), 125-143.
- 10) Tadelis, S. (2016). Reputation and feedback systems in online platform markets. *Annual Review of Economics*, 8, 321-340.
- 11) Teh, T.-H. (2022). Platform governance. *American Economic Journal: Microeconomics*, 14(3), 213-254.
- 12) Teh, T. H., Liu, C., Wright, J., & Zhou, J. (forthcoming) Multihoming and oligopolistic platform competition. *American Economic Journal: Microeconomics*.
- 13) Wang, C., & Wright, J. (2020). Search platforms: Showrooming and price parity clauses. *the RAND Journal of Economics*, 51(1), 32-58.

#### Course Instructors

Instructor	Office Location	Phone	Email
Tat-How Teh	HSS-04-61	TBC	tathow.teh@ntu.edu.sg

#### Planned Weekly Schedule

Week	Topic	ILO	Readings/ Activities
1	Introduction to multi-sided platforms	1, 2, 3 ,4	Lecture notes
2	Basic game theory and industrial organization preliminaries	1, 2, 3 ,4	Lecture notes
3	Pricing and competition with network effects	1, 2, 3 ,4	Lecture notes - Armstrong, M. (2006). Competition in two-sided markets. <i>The RAND journal of economics</i> , 37(3), 668-691.
4	Pricing and competition with network effects	1, 2, 3 ,4	- Rochet, J. C., & Tirole, J. (2006). Two-sided markets: a progress report. <i>The RAND journal of economics</i> , 37(3), 645-667

5	Multihoming and competitive bottlenecks	1, 2, 3, 4	Lecture notes - Armstrong, M., & Wright, J. (2007). Two-sided markets, competitive bottlenecks and exclusive contracts. <i>Economic Theory</i> , 32, 353-380.
6	Multihoming and competitive bottlenecks	1, 2, 3, 4	- Teh, T. H., Liu, C., Wright, J., & Zhou, J. (forthcoming) Multihoming and oligopolistic platform competition. <i>American Economic Journal: Microeconomics</i> .
7	Choosing marketplace or reseller	1, 2, 3, 4	Lecture notes - Hagiu, A., & Wright, J. (2015). Multi-sided platforms. <i>International Journal of Industrial Organization</i> , 43, 162-174.
<b>Recess Week</b>			
8	Launching problem	1, 2, 3, 4	Lecture notes - Hagiu, A., & Spulber, D. (2013). First-party content and coordination in two-sided markets. <i>Management Science</i> , 59(4), 933-949.
9	Product-to-platforms	1, 2, 3, 4	Lecture notes - Hagiu, A., Jullien, B., & Wright, J. (2020). Creating platforms by hosting rivals. <i>Management Science</i> , 66(7), 3234-3248.
10	Platform design: leakage	1, 2, 3, 4	Lecture notes - Wang, C., & Wright, J. (2020). Search platforms: Showrooming and price parity clauses. <i>the RAND Journal of Economics</i> , 51(1), 32-58.
11	Platform design: ratings and recommendations	1, 2, 3, 4	Lecture notes - Tadelis, S. (2016). Reputation and feedback systems in online platform markets. <i>Annual Review of Economics</i> , 8, 321-340.
12	Platform design: governing on-platform competition	1, 2, 3, 4	Lecture notes - Teh, T.-H. (2022). Platform governance. <i>American Economic Journal: Microeconomics</i> , 14(3), 213-254.
13	Policy issues and regulations	1, 2, 3, 4	Lecture notes - Crémer, J., De Montjoye, Y. A., & Schweitzer, H. (2019). Competition policy for the digital era. Report for the European Commission.