



**APPLICATION FORM FOR  
H3 COURSE “GAME THEORY” JANUARY 2025 INTAKE  
FOR A-LEVELS ECONOMICS**

**Deadline for Application: Friday 1 November 2024**

**Personal Particulars (Please fill up the form in CAPITAL LETTERS)**

Full Name (as in your NRIC/Passport): \_\_\_\_\_

Gender:  Male  Female      Date of Birth: \_\_\_\_\_ (DD/MM/YY)

Citizenship: \_\_\_\_\_      NRIC Type:  Pink     Blue

NRIC No. (for Singapore Citizens & PRs): \_\_\_\_\_

FIN No. (for student pass holders) : \_\_\_\_\_      Birth Country: \_\_\_\_\_

Junior College: \_\_\_\_\_      Contact Number: \_\_\_\_\_

Email: \_\_\_\_\_

**Academic Particulars (Please write intelligibly.)**

Are you considering other H3 Courses? Yes (    ) No (    )

If the answer is Yes please list all the course(s), H3 Game Theory included, in order of preference (1 means most preferred): \_\_\_\_\_

Are you part of any CCAs, clubs or teams?

Yes (    ), CCAs, clubs or teams: \_\_\_\_\_

No (    )

If the answer is Yes, please state the critical dates you have committed your time to the CCAs, clubs and teams:

\_\_\_\_\_  
\_\_\_\_\_

**Please rank the available days for the H3 course; 1 for most preferred, 2 for second preferred, 0 if unavailable on that day.**

Understand that when you accept our offer you are committing to attend the lessons on the day indicated on the offer letter. The date on the offer letter is set according to demand and supply. Your ranking of the days is used to determine the demand. Supply is inelastic, right? Thus, it is imperative that you rank the days in a thoughtful and conscious manner. The above questionnaire should have helped you in clearing your mind about your schedule for the weeks during which the H3 course runs. Still, you should also ask your teachers, mentors, seniors about future events (seminars, workshops and what not) you would want to attend.

Rank [    ]      Class 1: Fridays 4.30 pm – 7.30 pm  
Rank [    ]      Class 2: Saturdays 9.00 am – 12 noon





School of Economics  
Academic Year 2024-25  
Term 2

**ECON106Z: H3 Game Theory**

Instructor Name : Massimiliano Landi  
Email : landim@smu.edu.sg  
Tel : 6828 0872  
Office : 5030

**COURSE DESCRIPTION**

This course provides an introduction to *Game Theory*. Game theory deals with decisions of conflict and cooperation between equally intelligent individuals. In such a context each party needs to take into account the decision that the other will take, before choosing the best plan of action.

Models are used to describe the structure of the decision problem and enable the analysis of the possible scenarios. The descriptions are often expressed through graphs and mathematical language, and the scenarios are analysed with rigorous logical thinking.

In this course, particular attention will be given to situations that are essentially economic in nature but there will also be examples where social or political goals and factors are primary.

Reference to real world examples will be made extensively throughout the course. Likely applications are: how to look at the pricing problem in oligopolies; how to distinguish between competition and collusion in markets; where do politicians stand on issues during electoral campaign; how norms of cooperation may emerge in societies.

The syllabus is designed under the assumption that students have a knowledge and understanding of Economics at the H2 level, are willing to being pushed to a higher level of intellectual challenge and are capable of self-directed and independent (but supervised) learning.

**LEARNING OBJECTIVES**

By the end of the semester, students will have mastered the foundations of Game Theory and will have learned to apply the game-theoretic framework to analysing market competition and resource allocation problems that are directly related to the H2 Economics syllabus.

Students will also be equipped with a better appreciation of the strategic interactions present in different types of economic activity and social interactions.

Students will also get a glimpse of their future life in university in general, and SMU in particular.



School of Economics  
Academic Year 2024-25  
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## ASSESSMENT METHODS

Class Participation	: 5%
Mid-term Test	: 25%
Final Examination	: 70%
Total	: 100%

Participation is graded on the basis of different variables that depend on the engagement in class activities. More details on how these variables are aggregated will be provided in class.

Midterm exam: the midterm exam lasts for 2.5 hours. It is made of 3 structured problems questions that have subparts. All questions are compulsory. The regularly assigned homework provides an idea of the type of questions asked in the final exam, although students should not expect to be tested on the exact same questions from the homework. The midterm exam is individual, closed book, no calculator.

Final Exam: The final exam lasts for 3 hours. It is made of 4 structured problem questions that have subparts. All questions are compulsory. The regularly assigned homework provides an idea of the type of questions asked in the final exam, although students should not expect to be tested on the exact same questions from the homework. The final exam is individual, closed book, no calculator.

## ACADEMIC INTEGRITY

All acts of academic dishonesty (including, but not limited to, plagiarism, cheating, fabrication, facilitation of acts of academic dishonesty by others, unauthorized possession of exam questions, or tampering with the academic work of other students) are serious offences.

All work (whether oral or written) submitted for purposes of assessment must be the student's own work. Penalties for violation of the policy range from zero marks for the component assessment to expulsion, depending on the nature of the offense.

When in doubt, students should consult the instructors of the course. Details on the SMU Code of Academic Integrity may be accessed at <http://www.smuscd.org/resources.html>.

## ACCESSIBILITY

SMU strives to make learning experiences accessible for all. If students anticipate or experience physical or academic barriers due to disability, please let the instructor know immediately. Students are also welcome to contact the university's disability services team if they have questions or concerns about academic provisions: [included@smu.edu.sg](mailto:included@smu.edu.sg).

Please be aware that the accessible tables in the seminar room should remain available for students who require them.

## CLASS TIMINGS AND EXPECTATIONS

The class meets once a week for a three-hour session. Each session consists of a detailed explanation of the models discussed throughout the course and their applications. Time will also be devoted to *play some games* and to go through crucial steps of the homework assignments.

Students are expected to be motivated and focused, capable to work independently but also to contribute to the classroom environment. Students should not expect to be spoon fed.

The emphasis in this course is on the learning process and not on the memorization of few formulas. Therefore, curious and inquisitive minds will find this course intellectually stimulating and rewarding.

**RECOMMENDED TEXT AND READINGS**

The course is designed to be self-contained. The lectures follow quite closely the following textbook which is therefore the main references for students.

Dixit, Skeath and Reily; *Games of Strategy*, International Student Edition, 5<sup>th</sup> ed. W. W. Norton, New York, London.

**WEEKLY LESSON PLAN**

Week		Topics
1	Week 1	<b>Strategic Thinking with game theory</b> <ul style="list-style-type: none"> <li>• What is a game of strategy?</li> <li>• Rules of the Game</li> <li>• Decisions versus tactics</li> </ul>
2	Week 2	<b>Game with sequential moves</b> <ul style="list-style-type: none"> <li>• Drawing game trees</li> <li>• Backward Induction</li> <li>• Rollback equilibrium</li> </ul>
3	Week 3	<b>Games with simultaneous moves</b> <ul style="list-style-type: none"> <li>• Nash equilibrium</li> <li>• Continuous variables</li> </ul>
4	Week 4	<b>Games of dynamic competition</b> <ul style="list-style-type: none"> <li>• Combining sequential and simultaneous moves</li> <li>• Applications to business and politics</li> </ul>
5	Week 5	<b>Simultaneous-move games with mixed strategies</b> <ul style="list-style-type: none"> <li>• Beliefs and Responses</li> <li>• Games with more than two strategies</li> </ul>
6	Week 6	<b>The Prisoners' Dilemma</b> <ul style="list-style-type: none"> <li>• Repeated interactions</li> <li>• Applications to Politics, Evolutionary Biology</li> </ul>
7	Week 7	Revision and Midterm exam (2.5 hours)
8	Week 8	<b>Uncertainty and Information</b> <ul style="list-style-type: none"> <li>• Strategies to manipulate information</li> <li>• Screening versus signaling</li> </ul>
9	Week 9	<b>Entry Deterrence under Asymmetric Information</b> <ul style="list-style-type: none"> <li>• Separating, Pooling and Semi-separating Equilibrium</li> </ul>
10	Week 10	<b>Games with strategic moves</b> <ul style="list-style-type: none"> <li>• Commitment, threats and promises:</li> <li>• Applications: US-Japan trade relations</li> </ul>
11	Week 11	<b>Introduction to Auction Theory</b> <ul style="list-style-type: none"> <li>• Private-values auction model</li> <li>• Common-values auction model</li> </ul>
12	Week 12	Revision and Class Exercises
13	Week 13	Final Exam: 3 hours

## CALENDAR OF CLASSES

Week	Groups		Comments
	G1 (4.30pm-7.30pm)	G2 (9.00am-12.00pm)	
1	Friday, 17 January 2025	Saturday, 18 January 2025	
2	Friday, 24 January 2025	Saturday, 25 January 2025	
3	Friday, 7 February 2025	Saturday, 8 February 2025	
4	Friday, 14 February 2025	Saturday, 15 February 2025	
5	Friday, 21 February 2025	Saturday, 22 February 2025	
6	Friday, 28 February 2025	Saturday, 1 March 2025	
7		Saturday, 8 March 2024	Midterm exam at 9am.
8	Friday, 14 March 2025	Saturday, 15 March 2025	
9	Friday, 21 March 2025	Saturday, 22 March 2025	
10	Friday, 28 March 2025	Saturday, 29 March 2025	
11	Friday, 4 April 2025	Saturday, 5 April 2025	
12	Friday, 11 April 2025	Saturday, 12 April 2025	
13		Saturday, 3 May 2025	Final exam at 9am.

# Timeline

SMU H3 Start of Application	SMU H3 Application Closes	Notification of Application Outcomes	Deadline for acceptance of offers	SMU Student Account creation	SMU Online Matriculation	SMU ID Verification and Card Collection
30 Sept 2024*	1 Nov 2024*	15 Nov 2024*	22 Nov 2024*	End Nov 2024**	Dec 2024**	Early Jan 2025***
						

- **First Day of Class – 17 & 18 Jan 2025**
- **Last Day for Withdrawal – 25 Jan 2025**

\* Please do check with your respective JCs as each JC would have a different timeline, forms to be obtained from JC H3 coordinators. Applications must reach SMU by this date

\*\* Procedure to do completed online, compulsory for all students who have been given an offer and have accepted an offer for SMU – H3 – Game Theory

\*\*\* Has to be done in person

**Application for this H3 programme has to be submitted through your JC, no direct submissions will be entertained.**

## WHAT FORMER STUDENTS OF H3 GAME THEORY SAY

Lam Xu En  
Dunman High School  
Class of 2023

This programme provided insights into how Economics can be applied to the real world, enhancing my understanding on the factors taken into account for strategic decision-making. I got to learn about how players strategize via fun games and activities during class, and the class also provided me with a glimpse of how lessons in university would be carried out, helping me make a more informed decision for my undergraduate studies.

The programme has enhanced my analytical skills, assisting me to look at economic problems beyond the theoretical standpoint. As lessons were relatively self directed, I also had to learn how to study independently and take more ownership for my learning which helped me to foster more effective learning habits.

I highly recommend the SMU H3 Game Theory programme because it goes beyond what is taught in H2 Economics and really stretches your mind. The professor was incredibly engaging, making complex concepts accessible and fun. I enjoyed learning how to apply math to economics, giving me a glimpse into what university-level economics would be like. I also made incredible memories with my classmates as some of us would have lunch with the professor and also head to SMU's library to study together.

The programme taught me how to learn something thoroughly and apply it, without regurgitating information. Given that the content was rather challenging, it made me more resilient in face of academic challenges. Overall, game theory is a cool thing to know about!

Anna Tay  
River Valley High School  
Class of 2023

Kounlasatty Manivong (Nim)  
Tampines Meridian Junior College  
Class of 2021

H3 Game Theory had broaden my understanding of Economics in action. It is also very helpful to my current university course. Most importantly, it allows me to have a seminar-style university experience, that had been an important factor contributing to my university choice after A Levels.