Singapore Management University

COURSE INFORMATION

Course Code & Title
CS603 Multi-Agent Systems

Academic Year / Term
AY2025-26 Term 1

Offering Unit / School
SCIS

Course Career
Graduate - IT in Business

Course Units

CU:
1

Grading Basis
GRD - Graded

Course Description

The course provides an introduction to systems with multiple “agents”, where system and individual performances depend on all agent’s behaviors. We will cover theory and practice for strategic interactions among both selfish and collaborative agents. The most important foundation of the course is game theory and its direct application in modeling agent interactions, but we will also introduce how multi-agent systems can be applied to other fields in AI, such as machine learning, planning and control, and simulation.

Standard Learning Outcomes (for SOA only)

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Course Learning Outcomes

By the end of this course, students should be able to:

SMU Graduate Learning Outcomes

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Discipline Specific Competencies

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Course Area(s)

AREA - EngD Technical Application, RQCP - CS602, AREA - MITB Artificial Intelligence

Simple Requisites

CS602 - Pre-req

Type

Prerequisite

-

Complete ANY of the following Courses:

- CS602 - Algorithm Design and Implementation

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Additional Comments:

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CLASS SECTION INFORMATION

Instructor(s)

XIAO ZHE -

Course Instructor(s)

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Instruction Mode

In Person

Consultations and Teaching Assistants

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Office Location

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Assessment Methods

Assessment Method	Weightage
Class Participation	10

Assessment Method	Weightage
Assignments	50

Assessment Method	Weightage
Final Exam	40

Instructional Methods and Expectations

N/A

Weekly Lesson Plan

TBA

Recommended Textbooks and Readings

Main Reading:

[**MAS1**] Multiagent systems (2nd Ed.), edited by Gerhard Weiss. MIT Press, 2013.

https://search.library.smu.edu.sg/permalink/65SMU_INST/naremq/alma99250666102601

Optional Reading:

[**MAS2**] Multiagent Systems: Algorithmic, Game-Theoretic, and Logical Foundations, by Yoav Shoham and Kevin Leyton-Brown. Cambridge University Press, 2008.

Free PDF available at: http://www.masfoundations.org/mas.pdf

Tools:

Students are free to choose their choice of programming language for implementation.

Other Information

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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 https://smu.sharepoint.com/sites/oasis/SitePages/DOS-WKLSWC/UCSC.aspx

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Accessibility

SMU strives to make learning experiences accessible for all. If you anticipate or experience physical or academic barriers due to disability, please let me know immediately. You are also welcome to contact the university's student accessibility support team if you have questions or concerns about academic provisions: accessibility@smu.edu.sg.

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

Digital Readiness for Teaching and Learning (DRTL)

As part of emergency preparedness, instructors may conduct lessons online via the Zoom platform during the term, to prepare students for online learning. During an actual emergency, students will be notified to access the Zoom platform for their online lessons. The class schedule will mirror the current face-to-face class timetable unless otherwise stated.