

<b>Course number</b>	U-LAS70 10002 SE50				
<b>Course title (and course title in English)</b>	ILAS Seminar-E2 :Wonders of magnets ( 磁石のふしぎ ) ILAS Seminar-E2 :Wonders of magnets		<b>Instructor's name, job title, and department of affiliation</b>	Graduate School of Engineering Associate Professor,Jorge Luis Puebla Nunez	
<b>Group</b>	Seminars in Liberal Arts and Sciences		<b>Number of credits</b>	2	<b>Number of weekly time blocks</b> 1
<b>Class style</b>	seminar (Face-to-face course)	<b>Year/semesters</b>	2025 ・ Second semester		<b>Quota (Freshman)</b> 15 (15)
<b>Target year</b>	1st year students	<b>Eligible students</b>	For all majors		<b>Days and periods</b> Thu.5
<b>Classroom</b>	Seminar room 23, ILAS Bldg.				<b>Language of instruction</b> English
<b>Keyword</b>	Magnet				
<b>[Overview and purpose of the course]</b>					
Magnets are old and simultaneously new materials, which play a central role in modern society. The purpose of the seminar is to know basic of magnets and magnetic devices.					
<b>[Course objectives]</b>					
Understanding attractiveness of magnets and magnetism					
<b>[Course schedule and contents)]</b>					
Overview and history of magnetism (1 Week) Basics of magnetic materials (3 weeks) - Ferromagnets - Antiferromagnets - Ferrimagnets Working principles of magnetic devices (4 weeks) - Magnetoresistance - Magnetic valves - Magnetic memories Fabrication process of magnetic devices (2 weeks) - Device architecture - Fabrication techniques Principles of devices based on magnetic dynamics (3 weeks) - Magnetic resonance - Spin pumping - Spin torques Incoming magnetic devices (2 weeks) - Ongoing research trends Summary (1 week) - Take home messages					
<div> <div></div> <div>Continue to ILAS Seminar-E2 :Wonders of magnets ( 磁石のふしぎ ) (2)</div> </div>					

ILAS Seminar-E2 :Wonders of magnets (磁石のふしぎ) (2)

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**[Course requirements]**

None

**[Evaluation methods and policy]**

Evaluation will be based on participation (30%), discussion (30%), and short presentations (40%).

**[Textbooks]**

Not used

**[References, etc.]**

( References, etc. )

Introduced during class

**[Study outside of class (preparation and review)]**

Review of the contents is recommended.

**[Other information (office hours, etc.)]**

**[Essential courses]**