Course number			U-LAS70 10002 SE50									
Course title (and course title in English)	ILA thin 関す ILA thin and	ILAS Seminar-E2 :Logic, critical thinking and argument (自然科学・工学に 関する論理的・批判的思考法と議論) ILAS Seminar-E2 :Logic, critical thinking and argument (Natural Sciences and Engineering)							uate School of Energy Science ciate Professor,AU Ka Man			
Group	Semi	Seminars in Liberal Arts and Sciences				umbe	2 Number weekly time blc		of cks	1		
Class style		emin Face	ar e-to-face course)	Year/semes		ers	2025 • First	semeste	er	Quota (Freshma	<b>n)</b> 7	' (7)
Target year		Mainly 1st year students Eligible students For all majors							Day per	ys and iods	Thu.	5
Classroom	02, Y	02, Yoshida-South Campus Academic Center Bldg. West Wing							Language of En		Engl	ish
Keyword	Cognitive science / Philosophy and ethics / Science education / Logic / Argument											

#### [Overview and purpose of the course]

Science is not restricted to the academic world - it flows-over into the mass media (both factual and fictional). Logic is vital to the presentation of academic research findings and also to analyzing the communication of science in the media.

The aim of this course is for students to understand basic concepts of logic, and to learn and practice critical thinking with respect to science and its broader reporting in the mass media.

Students will participate in extracting themes, understanding bias in documents, videos and in their own work. They will practice how to critically analyze documents and to develop their own writing skills, particularly in the area of justification of arguments and the logical structuring and linking of content.

This course is suitable for all students who are interested in philosophy, logic and critical thinking. Although examples may be selected from science and engineering topics, students without a science background are welcome.

## [Course objectives]

The goal of the course is for students to be able to present logical written arguments and to be able to critically assess the validity and structure of literature in the natural sciences and engineering. This will be based on a variety of scientific literature in the academic realm as well as in the media.

### [Course schedule and contents)]

The course will broadly cover logic and critical thinking, including the following themes:

- 1. Introduction
- 2. Logical fallacies
- 3. Proof, argument and opinion
- 4. Definitions
- 5. Causality and causal arguments

Continue to ILAS Seninar-E2 : Logic, critical thinking and argument (自然将字·工学に関する論理的·批判的思考法と講論)(2)

|LAS Seminar-E2 :Logic, critical thinking and argument (自然科学・工学に関する論理的・批判的思考法と議論) (2)

# 6. Making the most of information

- 7. Belief and knowledge
- 8. Reasoning and emotion
- 9. Academic writing
- 10. Comprehension and meaning analysis
- 11. Case studies: science in the media / specialized topics

The course overall consists of 14 classes and one feedback session.

Each of the above topics covers 1-2 weeks, with one class per week. The exact topics may vary, depending on students' ability and topics of societal and scientific interest at the time.

# [Course requirements]

None

#### [Evaluation methods and policy]

In-class exercises and short assignments (50%) Final report (50%)

#### [Textbooks]

Not used

[References, etc.]

(References, etc.)

Introduced during class

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

Out of class preparation may be required.

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

Consultation is available by prior arrangement.

#### [Essential courses]