

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards (地震・火山噴火の予知及び防災) ILAS Seminar-E2 :Earthquakes & Volcanoes - Prediction and Hazards	Instructor's name, job title, and department of affiliation	Graduate School of Science Associate Professor, ENESCU, Bogdan Dumitru		
Group	Seminars in Liberal Arts and Sciences	Number of credits	2	Number of weekly time blocks	1
Class style	seminar (Face-to-face course)	Year/semesters	2024・Second semester	Quota (Freshman)	12 (10)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Thu.5
Classroom	Room 264, Graduate School of Science Bldg No.1 (North Campus)			Language of instruction	English
Keyword	Earthquakes (地震) / Volcanoes (火山) / Prediction (予知) / Hazard (ハザード)				
[Overview and purpose of the course]					
We are going to read scientific papers related to a topic that is important both scientifically and socially. Is it possible to predict the occurrence of large earthquakes and volcanic eruptions? What are the current scientific advances in this field? We will also learn about earthquake and volcano hazard and discuss ways to reduce the risk of associated disasters.					
[Course objectives]					
The course aims to show students the importance of studying about natural disasters caused by earthquakes and volcanoes, which may help finding better ways to reduce their risk. To facilitate understanding, some materials/vocabulary in Japanese will be provided during the seminar. 日本語のキーワード等もいたしますので、遠慮なく参加してください。近年重要度が高まっている地震・防災学を学びながら、英語の能力も向上しましょう！					
[Course schedule and contents]					
Each student is going to choose a paper and prepare a short report (few PowerPoint slides), summarizing the main ideas of the study. The paper can be chosen freely; some broad suggestions include: - The physics of great earthquakes (e.g., the 2011 M9.0 Tohoku-oki earthquake): any clues for predicting them? - Large volcanic eruptions and possibilities of prediction; - Earthquake and volcano hazard; - Earthquake simulations and laboratory experiments; - Artificial intelligence (AI) in Geosciences.					
The first class will give students some broad options of topics/papers. During the second class we will decide the paper that each student is going to present. I will exemplify with a research presentation during the third and fourth classes. Starting with the fifth class, each student is going to present the chosen paper and get feedback for improving his report. In the examination day, each student should present briefly his updated/revised report.					
Depending on the number of students and available time, we are going to visit the underground seismic base					
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isolation at the "Kyoto University Clock Tower", the nearby Hanaore Fault and the Disaster Prevention Research Institute (DPRI), Kyoto University (Uji campus), to discuss with a researcher specialized in Seismology and/or Volcanology.

For students interested in more advanced topics, including computer programming (in Python, C/C++, Matlab, Fortran or other computer languages) for Geosciences, I can provide additional materials and guidance.

Note: there are 14 classes, one examination, and one feedback class.

[Course requirements]

None

[Evaluation methods and policy]

Grading will be based on attendance and participation (60%) and presentation of chosen paper (40%).

[Textbooks]

Not used

[Study outside of class (preparation and review)]

The student will have to prepare the assigned paper.

[Other information (office hours, etc.)]

- Students can meet me during office hours with prior appointment.
- Since we may go outside the campus during the class (see "Course schedule and contents"), I advice students on taking accident insurance (e.g. Personal Accident Insurance for Students Pursuing Education & Research).