

Course number	U-LAS70 10002 SE50				
Course title (and course title in English)	ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention (土砂災害の防災・減災学) ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention	Instructor's name, job title, and department of affiliation	Graduate School of Agriculture Program-Specific Assistant Professor, SHARMA, Vikas		
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	2025・Second semester	Quota (Freshman)	15 (15)
Target year	Mainly 1st year students	Eligible students	For all majors	Days and periods	Wed.5
Classroom	W402 (North Campus)			Language of instruction	English
Keyword	soil mechanics / landslide / earthquake / tsunami / disaster management				
[Overview and purpose of the course]					
<p>The first half of this course introduces students to the processes and mechanism of natural phenomena associated with environmental hazards in soil. Being able to identify governing factors for the phenomena can help students find innovative solutions to prevent and reduce natural disaster risks. The course covers basic scientific theories and application that can enhance students' ability in modeling and analysis of the governing factors as well as the assessment of potential risk.</p> <p>The second half of this course introduces frameworks for vulnerability assessment which dovetails into geohazard assessment and management practice. This section also covers the important concept of Environmental Impact Assessment as a means for anthropogenic disaster mitigation.</p>					
[Course objectives]					
On successful completion of the course, students can be expected (1) to understand basic soil mechanics and hydraulics of groundwater, (2) to integrate these concepts to explain the failure mechanism of geo-disasters like landslides, (3) to analyze specific state-of-the-art disaster mitigation technologies and (4) to perform basic vulnerability, impact and disaster risk assessment.					
[Course schedule and contents]					
<ol style="list-style-type: none"> 1. Introduction to geo-disasters in the environment 2. Basic soil mechanics and hydraulics of groundwater (1) 3. Basic soil mechanics and hydraulics of groundwater (2) 4. Basic soil mechanics and hydraulics of groundwater (3) 5. Understanding mechanism of geo-hazard in the environment (1) - landslide, ground subsidence, internal erosion beneath river embankments 6. Understanding mechanism of geo-hazard in the environment (2) - landslide, ground subsidence, internal erosion beneath river embankments 7. Mechanism of earthquake-related geo-hazards - liquefaction, tsunami 8. State-of-the-art disaster mitigation technologies 9. Understanding vulnerability: political, physical, social, economic and environmental factors 					
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10. Student presentation
11. Basic concepts of geo-hazard assessment and management
 - mitigation, preparedness, response and recovery
12. Environmental Impact Assessment (EIA) for disaster mitigation (1)
13. Environmental Impact Assessment (EIA) for disaster mitigation (2)
14. Revision and self-learning week
15. Student presentation
16. Feedback

[Course requirements]

Beneficial but not mandatory: basic mathematics and physics (high school level). Students must be willing to work with basic mathematics.

[Evaluation methods and policy]

- Class performance (25%)
- Assignment report (30%)
- Oral presentation (45%)

[Textbooks]

Instructed during class
Additional study materials and handouts will be distributed.

[References, etc.]

(**References, etc.**)
Introduced during class

[Study outside of class (preparation and review)]

Students are expected to be independent in finding online resources to attain relevant issues of discussion during seminar to enhance student interaction and understanding during classes. There will be penalty for failure to attend the course (up to three classes) on routine schedule.

[Other information (office hours, etc.)]

After class, student consultation will be arranged with prior notice.