科目ナンバリング	U-LAS70 10002 SE50						
授業科目名 <英訳>	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			担当者所属職名・氏名	農学研究科　特定助教 SHARMA, Vikas		
群	少人数群	単位数	2単位	週コマ数	1コマ	授業形態	ゼミナール（対面授業科目）
開講年度・開講期	2026・後期	受講定員 (1回生定員)	15 (15) 人	配当学年	主として1回生	対象学生	全学向
曜時限	水5	教室	農学部総合館W402 (北部構内)			使用言語	英語
キーワード	soil mechanics / landslide / earthquake / tsunami / disaster management						

[授業の概要・目的]

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.

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.

[到達目標]

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.

[授業計画と内容]

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
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)

ILAS Seminar-E2 :Geo-Disaster Risk Reduction and Prevention（土砂災害の防災・減災学）(2)へ続く↓↓↓

14. Revision and self-learning week
15. Student presentation
16. Feedback

[履修要件]

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

[成績評価の方法・観点]

- Class participation (30%)
- Assignment report (30%)
- Oral presentation (40%)

[教科書]

授業中に指示する
Additional study materials and handouts will be distributed.

[参考書等]

（参考書）
授業中に紹介する

[授業外学修（予習・復習）等]

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.

[その他（オフィスアワー等）]

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

[主要授業科目（学部・学科名）]