基本情報/Course Schedule Information

開講区分(開講学期)／Semester	Fall and Winter Term
曜日・時間／Day and Period	Thu4
開講科目名／Course Name (Japanese)	地震の物理学
開講科目名(英)／Course Name	Physics in Earthquakes
授業形態／Type of Class	講義科目/Lecture
単位数／Credits	2
担当教員／Instructor	ZHENG Yajuan,　ETZRODT Christian

※メディア授業科目について

授業回数の半数以上を、多様なメディアを高度に利用して教室等以外の場所で行う授業を「メディア授業科目」としています。

学部学生が「メディア授業科目」を卒業要件に算入できるのは60単位が上限です。

なお、非該当の場合であっても、メディアを利用した授業を実施する場合があります。

授業担当教員一覧

詳細情報/Detailed Syllabus Information

授業サブタイトル／Course Subtitle	
開講言語／Language of the Course	English
学習方法／Learning Method 右の8つの学習方法のうち、該当するものにチェックをつけてください。 「その他（自由記述）」を選択した場合は、右の黄色セルに具体的な内容を入力してください。	聴講・視聴/Listening and watching face-to-face/online class,読解/Reading,討論/Discussion,協同/Collaborative work,調査/Research,体験・実践/Experience/practice,発表/Presentation ☑ Listening and watching face-to-face/online class: Listening and watching a lecture, video, or demonstration, face-to-face or via online (e.g., attending a face-to-face lecture, watching an on-demand video) ☑ Reading: Reading books and academic papers (e.g., summarizing an academic paper, reading information on a website) ☑ Discussion: Learning through question-and-answer interactions and exchanges of opinions among students and between students and the instructor (e.g., pair/group discussion, online chat, one-on-one guidance for writing an academic paper) ☑ Collaborative work: Working as a pair or a group (e.g., producing a poster through group work) ☑ Research: Collecting information from books and academic papers; gathering and analyzing data by fieldwork (e.g., review of previous research, fieldwork) ☑ Experience/practice: Learning from experience- and practice-based activities, and feedback on such activities (e.g., solving problems; laboratory work using instruments; on-campus and off-campus practical training; skills practice including sporting skills; project-based learning; internship) ☑ Presentation: Writing papers, making presentations, and creating works (e.g., report writing, oral/poster presentation, creation of works, portfolio development) ☐ Others(free description)
授業の目的と概要／Course Objective	Japan is a country where earthquakes occur frequently, making it essential for people living here to understand how to respond when one strikes. This course begins with a visit to a disaster prevention center, where students can experience a simulated earthquake. With questions and impressions fresh in their minds, students will then explore the mechanisms behind earthquakes, appropriate safety measures, and the impact on scientific facilities.
履修条件・受講条件／Requirement / Prerequisite	Interests in science.
出欠席及び受講に関するルール／Attendance and Student Conduct Policy	N/A
教科書・指定教材／Textbooks	N/A
参考図書・参考教材／Reference	Shunzo Okamoto, 'Introduction to Earthquake Engineering'. Bruce Bolt, 'Earthquakes and Geological Discovery'.
成績評価に関する補足情報／Additional Information on Grading	N/A
特記事項／Special Note	N/A
オフィスアワー／Office Hour	Upon Appointment
実務経験のある教員による授業科目／Course conducted by instructors with practical experience	N/A

※　合理的配慮は定型文につき除外。

学習目標・成績評価詳細情報/Learning Goals &Grading Policy Information

学習目標(1)／Learning Goal(1)	The goal is to help students develop a good understanding of earthquakes and learn how to respond effectively in the event of one.
学習目標(2)／Learning Goal(2)	
学習目標(3)／Learning Goal(3)	
学習目標(4)／Learning Goal(4)	
学習目標(5)／Learning Goal(5)	

↑　5行以上必要な場合は、行を挿入してください。

評価方法／Evaluation Method　（プルダウンで選択してください。「その他（自由記述）」を選択した場合は、カッコ内に具体的な内容を入力してください。）

学習目標／Learning Goals	学習への参加度/Learning Engagement	レポート・論文/Report/paper	発表/Presentation		
学習目標(1)／Learning Goal(1)	○	○	○		
学習目標(2)／Learning Goal(2)					
学習目標(3)／Learning Goal(3)					
学習目標(4)／Learning Goal(4)					
学習目標(5)／Learning Goal(5)					

評価割合(%)／Grade Breakdown	40%	20%	40%	%	%

↑　5行以上必要な場合は、行を挿入してください。

評価割合/Allocation of Marks（%）：100%

授業計画/Class Plan Detailed Information

回／Time	題目／Title	内容／Content	授業時間外学習／Independent Study Outside of Class
1	Guidance	Introduce the course plan and teaching methods. Brief presentation by everyone about the earthquake.	(Preview) Please read the syllabus in advance.
2	Introduction to earth	Structure of the Earth, History of Earth, Seismic Waves	(Review) Pleaese review what's introduced in the previous lesson.
3	Disaster Prevention	Visit Osaka City Abeno Disaster Prevention Center 'Abeno Taskaru'	(Review) Pleaese review what's introduced in the previous lesson.
4	Earthquake Intensity	Scales of Seismic Intensity, Earthquake Size	(Review) Pleaese review what's introduced in the previous lesson.
5	Case Studies	Earthqauke in Mongolia, NewZealand, Nobi earthquake, Kanto earthquake, etc	(Review) Pleaese review what's introduced in the previous lesson.
6	Earthquake Ground Motion	Earthquake motion in different ground conditions, propagation of elastic waves.	(Review) Pleaese review what's introduced in the previous lesson.
7	Design Earthquake Motion	Amplitude, waveform of earthquake motion and the vicinity of epicenter	(Review) Pleaese review what's introduced in the previous lesson.
8	Earthquakes and Nuclear Politics	Understand the seismic risk assessment, Fukushima nuclear power plant	(Review) Pleaese review what's introduced in the previous lesson.
9	Nuclear reaction	Nuclear experimentalists	(Review) Pleaese review what's introduced in the previous lesson.
10	Earthquake Resistance	Earthquake-resistant design procedures	(Review) Pleaese review what's introduced in the previous lesson.
12	Particle Detectors in Seismic Zones	T2K, Mizusawa, KAGRA, SuperKamioKande affected by earthquakes	(Review) Pleaese review what's introduced in the previous lesson.
11	Geoneutrinos	Earth structure from neutrinos	(Review) Pleaese review what's introduced in the previous lesson.
13	Research in Earthquake	Guest speaker sharing research frontier	(Review) Pleaese review what's introduced in the previous lesson.
14	NGO activities	NGO member sharing earthquake response.	(Review) Pleaese review what's introduced in the previous lesson and (Preview) prepare for presentation.
15	Student Presentation	Students give presentation on their selected topics.	(Preview) Please review what's introduced in the whole course.

↑　16行以上必要な場合は、行を挿入してください。

授業担当教員/Instructor(s)

教員氏名／Instructor Name	ふりがな／Name (hiragana)	所属・職名・講座名／Affiliation, Title, Course	居室／Office	内線／Extension	e-mail／E-mail
Yajuan Zheng	ぜん　やーじゅあん	International College			yjzheng.ic@osaka-u.ac.jp

↑　5行以上必要な場合は、行を挿入してください。