基本情報/Course Schedule Information

開講区分(開講学期)／Semester	Spring and Summer Term
曜日・時間／Day and Period	Tue4
開講科目名／Course Name (Japanese)	物理学と持続可能な未来
開講科目名(英)／Course Name	Physics for Sustainable Future
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	Introduce to students the concepts of SDGs and explore how they relate to our daily lives, primarily through physics. Students will also have opportunities to visit facilities that contribute to the realization of the SDGS. Guest speakers from differene specilialities will also be invited to introduce their efforts in contributing to SDGs in differnt aspects.
履修条件・受講条件／Requirement / Prerequisite	Interests in the future of our society, planet or the universe.
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	Syukuro Manabe, Anthony Broccoli, 'Beyond Global Warming: How Numerical Models Revealed the Secrets of Climate Change'.
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)	By the end of the course, students are expected to gain a basic understanding of the SDGs and be inspired to take part in achieving them in the future.
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 future.	(Preview) Please read the syllabus in advance.
2	Introduction to SDGs	A brief review of the 17 goals	(Review) Pleaese review what's introduced in the previous lesson.
3	Peace and Science	Goal 4: Quality education. The creation of large scientific organizations.Goal 17: partnership for the goals.	(Review) Pleaese review what's introduced in the previous lesson.
4	Power Plants	Goal 7: Affordable and clean energy. Ways to generate electric power. Tour to power plants.	(Review) Pleaese review what's introduced in the previous lesson.
5	Nuclear Fusion for Future Clean Energy	Goal 7: Affordable and clean energy. Scientifc Research.	(Review) Pleaese review what's introduced in the previous lesson.
6	Nuclear politics	Goal 7: Affordable and clean energy. A human science perspective.	(Review) Pleaese review what's introduced in the previous lesson.
7	CO2 and Earth's climate	Goal 13: Climate action.	(Review) Pleaese review what's introduced in the previous lesson.
8	Muon Tomography	Goal 11: Sustainable cities and communities.	(Review) Pleaese review what's introduced in the previous lesson.
9	Sustainable Cities and SDG 18	Goal 11: Sustainable cities and communities. Sustainable space exploration.	(Review) Pleaese review what's introduced in the previous lesson.
10	Water Purification	Goal 6: Clean water and Sanitation.	(Review) Pleaese review what's introduced in the previous lesson.
12	Energy-efficient Devices	Goal 9: Industry, Innovation and Infrastructure.	(Review) Pleaese review what's introduced in the previous lesson.
11	Synchrotron Radiation Facility	Goal 3: Good health and well-bing.	(Review) Pleaese review what's introduced in the previous lesson.
13	Medical Physics	Goal 3: Good health and well-bing.	(Review) Pleaese review what's introduced in the previous lesson.
14	NGO×SDGs	NGO member sharing SDGs efforts.	(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。