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学部・大学院区分 Undergraduate / Graduate	理学部
時間割コード Registration Code	0683030
科目区分 Course Category	専門基礎科目 Basic Specialized Courses
科目名 【日本語】 Course Title	地球環境科学
科目名 【英語】 Course Title	Environmental Earth Sciences
コースナンバリングコード Course Numbering Code	
担当教員 【日本語】 Instructor	HUMBLET Marc Andre ○
担当教員 【英語】 Instructor	HUMBLET Marc Andre ○
単位数 Credits	2
開講期・開講時間帯 Term / Day / Period	春 金曜日 1 時限 Spring Fri 1
授業形態 Course style	講義 Lecture
学科・専攻 Department / Program	G30 All program
必修・選択 Compulsory / Selected	See the "Course List and Graduation Requirements for your program for your enrollment year."

授業の目的 【日本語】 Goals of the Course(JPN)	
授業の目的 【英語】 Goals of the Course	Never before have had humans such a profound impact on the environment. The world population exceeds 7 billion and is growing steadily. Industrial and technological needs for energy and mineral resources are increasing every year. This course aims to review and discuss how humanity is changing the environment. More specifically, the course examines how human activities alter major biogeochemical cycles, and explores past climate change and the relationships between human activities and climate today. Students also learn about the nature and usefulness of geological resources and the environmental threats posed by their extraction and exploitation. The course not only aims to develop a scientific knowledge of important environmental issues, but also to promote the critical evaluation of information sources and the exchange of opinions in class.
到達目標 【日本語】 Objectives of the Course(JPN)	
到達目標 【英語】 Objectives of the Course	By the end of the course, students should be able to understand and explain the subjects covered in class. Students will also be required to search information on topics of their choice and relevant to the course content, analyze the information they have found, and present and discuss their findings in class.
授業の内容や構成 Course Content / Plan	<ol style="list-style-type: none"> 1. Introduction 2. Environmental Earth Sciences: general concepts 3. Earth cycles 1: Nitrogen cycle 4. Earth cycles 2: Phosphorus cycle 5. Earth cycles 3: Water cycle 6. Earth cycles 4: Carbon cycle 7. Past, present, future climate change 8. Geological Resources: Energy, Rocks, and Minerals
履修条件 Course Prerequisites	There is no specific prerequisite for this course.
関連する科目 Related Courses	The content of this course is more closely linked to biology- and earth science-related courses.
成績評価の方法と基準 Course Evaluation Method and Criteria	Two quizzes aim to evaluate students' understanding of the course content. In addition, students should fulfill the following assignments: (1) two short presentations on current news related to environmental sciences, (2) an essay/review paper, and (3) an oral presentation
不可(F)と欠席(W)の基準 Criteria for "Fail (F)" & "Absent (W)" grades	An "Absent (W)" grade is given to students who have officially withdrawn from the class by the end of May and to students who have withdrawn from the class for an exceptional reason (e.g., illness, accident). A "Fail" grade is given to students who withdraw from the class without meeting the aforementioned criteria and to student who have a final grade of 0-59%.
参考書 Reference Book	Anderson, D.E., Goudie, A.S., and Parker, A.G., 2013. Global environments through the Quaternary: exploring environmental changes. Second edition, Oxford University Press, 406 pages. Schlesinger, W.H. and Bernhardt, E.S., 2013. Biogeochemistry: an analysis of global change. Third edition, Elsevier, 672 pages. Ruddiman, W.F., 2013. Earth's climate: past and future. Third edition, Freeman, 464 pages. Craig, J.R., Vaughan, D.J., Skinner, B.J., 2011. Earth resources and the environment. Fourth edition, Pearson, 508 pages.
教科書・テキスト Textbook	There is no required textbook for this course. Please refer to the recommended reading list below for interesting books related to the course content.
課外学習等 (授業時間外学習の指示) Study Load(Self-directed Learning Outside Course Hours)	There are two short oral presentations, a final essay and oral presentation to prepare outside course hours. In addition, students need to have acquired sufficient understanding of the course content to answer the questions of the two quizzes.
注意事項 Notice for Students	
他学科聴講の可否 Propriety of Other department student's attendance	
他学科聴講の条件 Conditions for Other department student's attendance	
レベル Level	
キーワード Keyword	
履修の際のアドバイス Advice	
授業開講形態等 Lecture format, etc.	Lectures will be given online via Zoom or in a hybrid format. NUCT will be used to upload teaching material.
遠隔授業(オンデマンド型)で行う場合の追加措置 Additional measures for remote class (on-demand class)	

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