

<b>Fundamentals of Earth Science II</b>			
<b>Undergraduate / Graduate</b>	Undergraduate	<b>Registration Code</b>	0052521
<b>Course Category</b>	Sciences Basic	<b>Credits</b>	2.0
<b>Term (Semester) / Day / Period</b>	G-II (1st year, Spring Semester) / Tue. / 5 (16:30~18:00)		
<b>Instructor</b>	HUMBLET Marc Andre		
<b>Contact e-mail of the Instructor</b>	humblet.marc.n3@f.mail.nagoya-u.ac.jp		
<p><b>●Goals of the Course</b>            This course explores the interactions between humanity and the Earth system. The Earth is a dynamic planet where the evolution of the environment and that of life are closely related. Human societies are profoundly influenced by climate change and geologic events such as volcanic eruptions and earthquakes. Today the growing human population and its use of natural resources are affecting the environment on a global scale to an extent never attained before. This course is intended to introduce some of the most important problematics arising from our interactions with planet Earth.</p>			
<p><b>●Objectives of the Course</b>            By taking this course students will acquire a basic knowledge of volcanology and seismology, past and present climate change, and the nature and use of geologic resources. Learning about the interactions between humanity and the Earth system is needed to use Earth's limited natural resources in a sustainable manner, minimize the risks of natural hazards, and envisage a safe future for us all. Students will also have the opportunity to explore further a topic of their choice, and share what they have learned with their classmates.</p>			
<p><b>●Course Content or Plan</b></p> <ol style="list-style-type: none"> <li>1. Introduction – review of plate tectonics</li> <li>2. Volcanoes</li> <li>3. Seismology I: The nature of earthquakes and their effects</li> <li>4. Seismology II: Reconstruction of Earth's interior based on the behavior and detection of seismic waves</li> <li>5. Biogeochemical cycles I: The Water Cycle</li> <li>6. Biogeochemical cycles II: The Carbon Cycle</li> <li>7. Climate I: Introduction to the Climate System</li> <li>8. Climate II: Natural Variations at geologic timescales</li> <li>9. Climate III: Recent Global Change</li> <li>10. Nature and use of geologic resources</li> </ol>			
<p><b>●Course Prerequisites and Related Courses</b>            There is no prerequisite for this course. This course is most closely related to Fundamentals of Earth Science I.</p>			
<p><b>●Course Evaluation Method and Criteria</b>            Quizzes: 60%            Written essay: 30%            Oral presentation: 10%</p> <p>Students who enrolled in 2020 will be graded using the six-step A+, A, B, C, C-, and F grade evaluation system (A+: 100-95%, A: 94-80%, B: 79-70%, C: 69-65%, C-: 64-60%, F: 59 % or less).</p> <p>Students who enrolled in 2019 or before will be graded following the five-step S-A-B-C-F grade evaluation system (S: 90-100%, A: 80-89%, B: 70-79%, C:60-69%, F: 59-0%).</p> <p>A student will be given an "Absent" grade if he or she submits a Course Withdrawal Request by the end of May. This deadline does not apply to students who drop the class part-way through for an exceptional reason (e.g., illness, accident). Also, NUPACE students should check the deadline set by the NUPACE program for course withdrawal.</p> <p>The quizzes cover the material learned in class and explained in notes and slides provided during each lecture. The files of the notes and PPT slides are uploaded every week on NUCT.</p>			

The grading scheme of the essay is explained during the first lecture of the course. Each student gives a presentation on the subject of their essay at the end of the semester.

**●Study Load (Self-directed Learning Outside Course Hours)**

Students should acquire a good understanding of the course content to be able to answer the questions of the quizzes. Students are also required to write a review paper on a subject of their choice related to the course content. Students therefore need to search for information related to this subject and to summarize that information in a clear, organized, and concise manner. The topic of the review paper is also the subject of an oral presentation that each student gives at the end of the semester.

**●How to Respond to Questions**

Live lectures will be organized (in class or online or both), and students are strongly encouraged to ask questions during the lectures. Students can also contact me by e-mail or meet me in person in my office. NUCT will be used as another way of communication, to share files and send messages.

<b>Textbook</b>	There is no required textbook for this course. Please refer to the recommended reading below for an additional source of information.
<b>Reference Book</b>	Title: Understanding Earth Authors: John Grotzinger & Thomas H. Jordan Publisher: W. H. Freeman Issue year: 2014 (7th edition) ISBN: 978-1464138744