

<b>Fundamentals of Earth Science I</b>			
<b>Registration Code</b>	0061411	<b>Credits</b>	2.0
<b>Course Category</b>	Sciences Basic		
<b>Term (Semester) / Day / Period</b>	G-I (1st year, Fall Semester) / Mon. / 4 (14:45~16:15)		
<b>Instructor</b>	HUMBLET Marc Andre		
<b>Target Schools (Programs)</b>	Sc(P·C·B)·En(P·C·Au)·Ag(B)		
<p>● <b>Objectives of the course</b>            The study of planet Earth embraces a wide range of topics, from the formation of rocks to the evolution of life, from continental drift to the study of earthquakes and volcanoes. In this course, fundamental concepts of earth science will be covered. Students will be introduced to plate tectonics, the fundamental theory underlying the geological processes which have shaped the environment in which we live and continue to modify the landscape, from the slow, progressive uplift of mountains to violent earthquakes and volcanic eruptions. Students will learn how the Earth recycles matter and how minerals and rocks form and are transformed. One chapter is dedicated to the issue of time, more specifically the question of how the age of rocks and geological events can be determined, which is central to earth science. We will then take a step back and look at Earth's 4.5-billion-year history to see how the Earth's geography has changed and how life has evolved. Besides providing a basic and up-to-date knowledge of the essential concepts of earth science, the aim of this course is to stimulate the interest and curiosity of the students for the study of planet Earth and provoke questions, comments, and discussions about issues related to earth science.</p>			
<p>● <b>Content of the course</b></p> <ol style="list-style-type: none"> <li>1. Earth Sciences: an introduction</li> <li>2. The solar system</li> <li>3. Plate tectonics</li> <li>4. Minerals: rock's elementary building blocks</li> <li>5. Rocks and rock cycle I: igneous rocks</li> <li>6. Rocks and rock cycle II: sedimentary rocks</li> <li>7. Rocks and rock cycle III: metamorphic rocks</li> <li>8. The age of rocks</li> <li>9. Earth history I: paleogeography</li> <li>10. Earth history II: origin and evolution of life</li> </ol>			
<p>● <b>Practical classes</b>            The students will examine hand-size rock samples and rock thin sections chosen to illustrate the different rock types and geological structures seen during the course. In addition, the students will also participate in a one-day field trip to examine the geology of Mizunami area (Gifu Prefecture), examine Miocene fossils and sediments (20-15 million years old), and learn how geologists collect data in the field.</p>			
<p>● <b>Evaluation methods</b>            Two quizzes (multiple choice): 20% (10% each); mid-term exam: 40%; final exam: 40%            Students 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%            A student will be given an "Absent" grade if he or she submits a Course Withdrawal Request by the 15<sup>th</sup> of November. This deadline does not apply to students who drop the class part-way through for an exceptional reason (e.g. illness, accident).</p>			
<p>● <b>Notice for Students</b>            Handouts of lecture notes and slides will be distributed during the class. Students can refer to the reference books indicated if they wish to have complementary information about the subjects covered by the course. The books are available at the science library.</p>			
<b>Textbook</b>	---		
<b>Reference Book</b>	John Grotzinger, Understanding Earth 6/e (ISBN:9781429240031 or 9781429219518) Diane Carlson, Physical Geology International Edition (ISBN:9780071221849)		

