

Department	International College of Liberal Arts		
Semester	Fall 2025	Year Offered (Odd/Even/Every Year)	Every Year
Course Number	SCNS110		
Course Title	Earth Science		
Prerequisites	None		
Course Instructor	JHINGAN Sanjay	Year Available (Grade Level)	1
Subject Area	Quantitative Reasoning & Natural Sciences	Number of Credits	3
Class Style	Lecture	Language of instruction	English

(NOTE 1) Depending on the class size and the capacity of the facility, we may not be able to accommodate all students who wish to register for the course

Course Description	This course offers a scientific exploration of Earth's natural systems, focusing on the interactions and exchanges between the atmosphere, land, living organisms, and physical laws.
Class plan based on course evaluation from previous academic year	Based on student feedback from the previous offering of this course, regular in-class quizzes will be introduced. These quizzes will help students better assess their understanding and overall progress.
Course related to the instructor's practical experience (Summary of experience)	Not applicable.
Learning Goals	<p>The course will emphasize the development of scientific reasoning, as well as critical and independent thinking skills. By the end of the course, students should have gained an appreciation for Earth's nature and the interconnected global influences that shape it. Students should be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the nature of scientific inquiry.</li> <li>2. Explain Earth's resources and the impact of human activity on those resources.</li> <li>3. Describe the roles of water, wind, ice, and gravity in shaping land-forms.</li> <li>4. Relate the theory of plate tectonics to earthquakes, volcanoes, and mountain building.</li> <li>5. Develop an understanding of our oceans, atmosphere, and climate change.</li> <li>6. Discuss ancient and modern astronomy, as well as Earth's location in the universe.</li> </ol>

iCLA Diploma Policy	DP2/DP4
---------------------	---------

## iCLA Diploma Policy

(DP1) To Value Knowledge – Having high oral and written communication skills to be able to both comprehend and transfer knowledge

(DP2) To Be Able to Adapt to a Changing World – Having critical, creative, problem-solving, intercultural skills, global and independent mindset to adopt to a changing world

(DP3) To Believe in Collaboration – Having a disposition to work effectively and inclusively in teams

(DP4) To Act from a Sense of Personal and Social Responsibility – Having good ethical and moral values to make positive impacts in the world

Active Learning Methods	Problem-Based Learning/Discussion, Debate			
More details/supplemental information on Active Learning Methods	<p>This course focuses on Planet Earth, our home in the cosmos. Students are expected to develop an understanding of the fragility of our planet and foster a sense of personal and social responsibility toward its care and preservation.</p> <p>Students will be evaluated through in-class quizzes that assess their ability to apply lecture concepts to real-world problems. Active participation in class discussions, where students relate learned concepts to real-life situations, is highly encouraged.</p>			
Use of ICT	UNIPA for communication with the instructor, accessing class materials, and tracking attendance.			
Contents of class preparation and review	Students are encouraged to access class material on UNIPA, and prepare themselves before coming to lecture.	Hours expected to be spent preparing for class (hours per week)	2 hours	Hours expected to be spent on class review (hours per week)
Feedback Methods	UNIPA, and Office 365 will be used for regular feedback to quizzes. Student can use office hours for discussion.			

Grading Criteria		
Grading Methods	Grading Weights	Grading Content
In-Class Quiz	100%	Eight quizzes will be conducted during the course.

Required Textbook(s)	E. J. Tarbuck and F. Lutgens, EARTH SCIENCE, 14th Edition, Pearson
Other Reading Materials/URL	<p>Students are encouraged to use any book on Earth Science, Physical Geology, Environmental Science. Information available on various platforms such as NASA, ESA, National Geographic etc. can be useful for understanding concepts covered in the course.</p> <p><a href="https://www.esa.int/About_Us/Ministerial_Council_2012/Earth_science">https://www.esa.int/About_Us/Ministerial_Council_2012/Earth_science</a></p> <p><a href="https://science.nasa.gov/earth-science">https://science.nasa.gov/earth-science</a></p> <p><a href="https://www.nationalgeographic.org/topics/geology/">https://www.nationalgeographic.org/topics/geology/</a></p>
Plagiarism Policy	Plagiarism is the dishonest presentation of the work of others as if it were one's own. Duplicate submission is also treated as plagiarism. Depending on nature of plagiarism you may fail the assignment or the course. Repeated act of plagiarism will be reported to the University which may apply additional penalties.
Other Additional Notes (Outline crucial policies and info not mentioned above)	Students are not allowed to use mobile phones or laptops during lectures. However, digital note-taking devices are permitted.

(NOTE 2) Class schedule is subject to change

Class Schedule	
Class Number	Content
Class 1	Lecture 1 Course overview, The nature of scientific inquiry, Early Evolution of Earth, Earth Spheres, and Earth as a system.
Class 2	Lecture 2 Fundamentals: Atoms, Bonding, Minerals. Mineral groups and properties.
Class 3	Lecture 3 Fundamentals: Group discussion.
Class 4	Lecture 4 Rocks: Rock cycle, Igneous, Sedimentary, Metamorphic rocks.
Class 5	Lecture 5 Rocks: Mineral resources. Group discussion. In-class Quiz 1.
Class 6	Lecture 6 Weathering: Mechanical and Chemical weathering.
Class 7	Lecture 7 Weathering: Soil. Group discussion.
Class 8	Lecture 8 Water, Running and Underground: Hydrologic cycle, Running water, Stream flow and erosion, stream channels and valleys, depositional landforms.
Class 9	Lecture 9 Water, Running and Underground: Ground water. Group discussion.
Class 10	Lecture 10 Glaciers Desert and Wind: Glaciers and earth systems, movement, erosion and deposits, Ice ages.
Class 11	Lecture 11 Glaciers Desert and Wind: Deserts, Wind erosion and deposits. Group discussion. In-class Quiz 2.
Class 12	Lecture 12 Plate Tectonics: Theory of plate tectonics, plate boundaries, plate motion.
Class 13	Lecture 13 Plate Tectonics: Group discussion.
Class 14	Lecture 14 Earth quake and Earth's Interior: Earthquake, Seismology, Size and scale of earthquakes, Earthquake and plate boundaries.
Class 15	Lecture 15 Earth quake and Earth's Interior: Earth interior and layers. Group discussion.
Class 16	Lecture 16 Volcanoes: Nature of volcanic eruptions, Anatomy of a volcano, Volcanic land-forms, Plate tectonic and volcanic activities.

Class 17	Lecture 17 Mountain Building: Crustal deformation, Faults and joints, Mountain building. Group discussion. In-class Quiz 3.
Class 18	Lecture 18 Earth's History: Time scale: Relative dating.
Class 19	Lecture 19 Earth's History: Fossils.
Class 20	Lecture 20 Earth's History: Group discussion. In-class Quiz 4.
Class 21	Lecture 21 Global Ocean: World Ocean, ocean floor, Continental margins, Ocean ridges, Seafloor sediments.
Class 22	Lecture 22 Global Ocean: Composition of sea water, Variation of density and temperature with depth.
Class 23	Lecture 23 Global Ocean: Ocean circulation, Ocean waves. In-class Quiz 5.
Class 24	Lecture 24 Atmosphere: Composition of atmosphere, Vertical structure.
Class 25	Lecture 25 Atmosphere: Earth Sun relation Energy, Heat and temperature, Humidity and cloud formation, Understanding air pressure, Factors affecting wind. Storms.
Class 26	Lecture 26 Climate Change: Climate system, Different climates, Climate change. In-class Quiz 6.
Class 27	Lecture 27 Earth in the Universe: Ancient Astronomy, Modern Astronomy, Constellations.
Class 28	Lecture 28 Earth in the Universe: Motion of Earth, Earth moon system, Eclipses, Solar system, Moon, Terrestrial and Jovian planets.
Class 29	Lecture 29 Light from space, Optical, radio and space telescopes. The Sun, Universe, Birth and evolution of stars, Death of stars, Galaxies and Galactic clusters, The big bang theory.
Class 30	Lecture 30: Group discussion. In-class Quiz 7.