

SC 1007 LE AN INTRODUCTION TO EARTH AND SPACE SCIENCE
 (Same as ES 1007)

(Fall 2016)

No prerequisites

CATALOG DESCRIPTION:

An introduction to earth and planetary science; a study of earth systems and their interactions as driving forces for the earth's evolution. The structure and composition of the earth systems, the formation of the solar system, stars and galaxies are discussed.

RATIONALE:

An Introduction to Earth and Space Science is a science course that is designed for students with little or no background in natural sciences and aims at giving them an understanding of the nature and function of earth systems (the geosphere, the hydrosphere and the atmosphere) and the major mechanisms responsible for the evolution of the earth. The course also explores the formation of the solar system, stars, space and recent advances in planetary science. It is a useful course for any student who wishes to be informed about recent advances in earth and planetary sciences.

LEARNING OUTCOMES:

- As a result of taking this course, the student should be able to:
1. Demonstrate knowledge and understanding of the structure and function of earth systems and the major interactions among them.
 2. Outline the formation of the Earth and the solar system and explain the process of the earth's evolution, with emphasis on geologic time, plate tectonics, weathering and erosion, freshwater systems, oceans, climate and climate change.
 3. Demonstrate understanding of the origin and evolution of the universe as well as the birth and death of stars.
 4. Discuss the human impact on geological resources and the sustainable use of mineral resources.
 5. Discuss the importance of recent developments and applications in earth and planetary science.

METHOD OF TEACHING AND LEARNING:

- In congruence with the learning and teaching strategy of the college, the following tools are used:
- Class lectures, interactive learning (class discussions, group work), video presentations, and practical problems solved in class.
 - Exercises and primary source documents are assigned as homework and are discussed and reviewed in class
 - Office hours: students are encouraged to make full use of the office hours of their instructor, where they can ask questions, see their exam paper, and/or go over lecture/lab material.
 - Use of a blackboard site, where instructors post lecture notes, assignment instructions, timely announcements, web links as well as additional resources.

ASSESSMENT:

Summative:	
Midterm examination (1 hour): Multiple choice/short answers/essay questions (combination)	35%
Short project (1,000 words)	15%
Final examination (2 hours): Multiple choice/short answers/essay questions (combination)	50%

	<p>Formative:</p> <table border="1" data-bbox="639 134 1382 201"> <tr> <td>Essay questions (as homework assignments)</td> <td>0</td> </tr> <tr> <td>In-class or online quizzes</td> <td>0</td> </tr> </table> <p>The formative tests aim to prepare students for the examinations. The midterm examination tests Learning Outcomes 1,2,3,4, focusing on the first part of the content. The final examination tests Learning Outcomes 1,2,3,4, focusing on the second part of the content. The project tests learning outcome 5 and may test one or more of learning outcomes 1-4 depending on topic. The final grade for this module will be determined by averaging all summative assessment grades, based on the predetermined weights for each assessment. Students are not required to resit failed assessments in this module. Failure to pass the module results in module repeat.</p>	Essay questions (as homework assignments)	0	In-class or online quizzes	0
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In-class or online quizzes	0				
<p>INDICATIVE READING:</p>	<p>Required Reading:</p> <ul style="list-style-type: none"> • Thomson, G.R. and Turk, J. 2007. <i>Earth Science and the Environment</i>, 4th Edition, Saunders College Publishing. <p>Recommended Readings:</p> <ul style="list-style-type: none"> • Cesare E., <i>Planet Earth: Cosmology, Geology and the Evolution of Life and Environment</i>, latest edition 				
<p>INDICATIVE MATERIAL: (e.g. audiovisual, digital material, etc.)</p>	<p>REQUIRED MATERIAL: N/A</p> <p>RECOMMENDED MATERIAL: N/A</p>				
<p>COMMUNICATION REQUIREMENTS:</p>	<p>Verbal skills using academic/professional English</p>				
<p>SOFTWARE REQUIREMENTS:</p>	<p>Word, Powerpoint, Excel</p>				
<p>WWW RESOURCES:</p>	<ul style="list-style-type: none"> • www.sciam.com: Scientific American • www.nasa.gov: National Aeronautics and Space Administration • www.nodc.gov: National Centers for Environmental Information • www.aquanet.com: • www.nature.com: Nature, scientific magazine 				
<p>INDICATIVE CONTENT:</p>	<ol style="list-style-type: none"> 1. Introduction: Earth Systems, the Origin of the Earth and the Solar System 2. Structure, Composition and Evolution of the Earth <ul style="list-style-type: none"> • Minerals and Rocks • Geologic Time • Plate Tectonics, Earthquakes, Volcanoes • Weathering and Erosion • Fresh Water Systems • Oceans • The Atmosphere, Weather, Climate • Human Interactions with Earth Systems 3. Astronomy <ul style="list-style-type: none"> • Motion in the Heavens • Planets, Stars and Space 				