

Earth Science

SCI-900

2022 07/01/2022 to 06/30/2023 Modified 04/22/2022

Course Description

God designed the Earth with unique properties and characteristics. He created a delicate balance amongst the systems of the Earth, the solar system, and the universe. Emphasis will be placed on understanding the Earth's systems, their interrelationships with each other, and man's effect on the Earth. Students will be given the opportunity to explore rocks and minerals, geology, Earth's interior, Earth's geologic history, plate tectonics, volcanoes, earthquakes, weather, storms, climate, oceans, the solar system, and stars and galaxies. The students will be given the challenge to explore the rationale behind secular, old earth, and young earth science in order to be more effective at presenting the Gospel scientifically. The course is a rigorous, multimedia and laboratory-based science course that will require supplies for the hands-on labs.

Rationale

Earth Science allows the students an opportunity to explore the Earth and its systems. Knowledge of the way the Earth changes over time gives students the understanding of the delicate balance on the Earth and the need to preserve it. It allows them the opportunity to explore their surroundings and view their world through different eyes. The study of the Earth will allow students a deeper understanding of the Earth's place in the solar system and the galaxy to prepare for a greater tomorrow. Earth Science also opens the students up to new technologies that are being utilized every day in this study of our planet.

Prerequisite

None

Measurable Learning Outcomes

- A. The student will plan and conduct investigations which include measurement, technology, charts, cartography, variables, and applications to Earth Science.
- B. The student will demonstrate an understanding of the nature of science and scientific reasoning, logic, and inference.
- C. The student will investigate and understand the characteristics of Earth and the solar system.
- D. The student will investigate and understand how to identify major rock-forming and ore minerals based on physical and chemical properties.
- E. The student will investigate and understand the rock cycle as it relates to the origin and transformation of rock types and how to identify common rock types based on mineral composition and textures.
- F. The student will investigate and understand the differences between renewable and nonrenewable resources.
- G. The student will investigate and understand geologic processes including plate tectonics.
- H. The student will investigate and understand how freshwater resources are influenced by geologic processes and the activities of humans.
- I. The student will investigate and understand that many aspects of the geologic history can be inferred by studying rocks and fossils.
- J. The student will investigate and understand that oceans are complex, interactive physical, chemical, and biological systems and are

subject to long- and short-term variations.

K. The student will investigate and understand that energy transfer between the sun and Earth and its atmosphere drives weather and climate on Earth.

Biblical Integration Outcomes

A. The student will investigate a biblical perspective on geological history and the origin of the Earth and universe.

B. The student will investigate geological evidences which confirm the reality of biblical history related to the Flood of Noah in scripture.

Course Resources

See LUOA's [Systems Requirements](#) for computer specifications necessary to operate LUOA curriculum. Also view [Digital Literacy Requirements](#) for LUOA's expectation of users' digital literacy.

- Note: Embedded YouTube videos may be utilized to supplement LUOA YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, LUOA is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the [Jerry Falwell Library](#).

Scripture Attribution

- Grades 7-12: All Scripture quotations, unless otherwise indicated, are from the ESV® Bible (The Holy Bible, English Standard Version®), copyright © 2001 by Crossway, a publishing ministry of Good News Publishers. Used by permission. All rights reserved. May not copy or download more than 500 consecutive verses of the ESV Bible or more than one half of any book of the ESV Bible."

Policies

Students are accountable for all information in the [Student Handbook \(https://www.liberty.edu/online-academy/wp-content/uploads/2021/11/LUOA-Student-Handbook.pdf\)](https://www.liberty.edu/online-academy/wp-content/uploads/2021/11/LUOA-Student-Handbook.pdf). Below are a few policies that have been highlighted from the Student Handbook.

Course Grading Policies

The student's grades will be determined according to the following grading scale and assignment weights. The final letter grade for the course is determined by a 10-point scale. Assignments are weighted according to a tier system, which can be referenced on the Grades page in Canvas. Each tier is weighted according to the table below. Items that do not affect the student's grade are found in Tier 0.

Grading Scale	Assignment Weights
A 90-100%	Tier 0 0%
B 80-89%	Tier 1 25%
C 70-79%	Tier 2 35%
D 60-69%	Tier 3 40%
F 0-59%	

In order for students to receive credit for a course, the following conditions have to be met:

- All semester exams and module tests have to be completed.

- All Tier 3 projects or papers have to be completed.
- Fewer than 10 zeros exist in the gradebook for blank submissions in a full credit course and 5 zeros for blank submissions in a semester course.

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, "1.2.W - Quiz: The American Revolution." These identifiers were placed on the Modules page to help students understand which Resubmission and Honor Code policies apply to that assessment (see the Resubmission Policy and Honor Code Policy below for further details).

- **Lesson:** *Any item on the Modules page designated as a "Lesson"*

These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.

- **Assignment:** *Any item on the Modules page designated as an "Assignment"*

Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.

- **Quiz:** *Any item on the Modules page designated as a "Quiz"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.

- **Test:** *Any item on the Modules page designated as a "Test"*

This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a Lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.
- **Assignment:** Students should do their best work the first time on all Assignments. However, any resubmissions must be completed before the student moves more than one module ahead of that Assignment. For example, a student may resubmit an Assignment from Module 3 while in Module 4, but not an Assignment from Modules 1 or 2. High School students may not resubmit an Assignment without expressed written permission from the teacher in a comment.
- **Quiz:** Students may NOT resubmit for an increased grade.
- **Test:** Students may NOT resubmit for an increased grade.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request.

Honor Code Policy

Every time a student violates the Honor Code, the teacher will submit an Honor Code Incident Report. The Student Support Coordinator will review the incident and allocate the appropriate consequences. Consequences, which are determined by the number of student offenses, are outlined below:

- **Warning:** This ONLY applies to high school Lessons and elementary/middle school Assignments and Lessons. Students should view these actions as learning opportunities.
 - **Lessons:** A zero will be assigned for the question only.
 - **Elementary/Middle School Assignment:** The student must redo his or her work; however, the student may retain his or

her original grade.

- **1st Offense:**
 - **Lesson, Quiz, or Test:** The student will receive a 0% on the entire assessment.
 - **Assignment:** The student will either:
 - Receive a 0% on the original assignment
 - Complete the Plagiarism Workshop
 - Retry the assignment for a maximum grade of 80%
- **2nd Offense:** The student will receive a 0% and be placed on academic probation.
- **3rd Offense:** The student will receive a 0% and the Director of Faculty will determine the consequences that should follow, possibly including withdrawal from the course or expulsion from the academy.

Materials Selection Policy

LUOA curates educational materials that are consistent with the school's philosophy; however, the fallen human condition depicted in literature (as in Scripture itself) is not always pleasant. Valuable works sometimes have objectionable or profane elements. Good books provide four (4) recognized values.

- They build godly attitudes and character traits.
- They deepen our social and cultural awareness.
- They strengthen our use of written language.
- They provide a lifelong source of enjoyment and relaxation.

In order to instill these values in students and fulfill the stated objectives of the school, all LUOA students are expected to read and study good books on a regular basis. Recognizing that materials designed for one level may not be appropriate for another, three (3) levels of criteria are applied:

- Elementary materials must contain no objectionable material,
- Objectionable elements in sixth through eighth-grade materials must be limited and must serve a specific educational purpose, and
- Objectionable content may be included in high school materials but must be outweighed by positive literary, curricular, and/or Christian values.

The curriculum department has approved required educational materials for students.

Schedule

Module 1: Introduction to Earth Science

Week 1: Let's Learn About Research & Class Expectations

Week 2: The Scientific Method

Week 3: Measurement of the Earth

Week 4: Mapping the Earth

Module 2: Astronomy

Week 5: The Big Picture

Week 6: Our Place in the Solar System

Week 7: The Planets Part I

Week 8: The Planets Part II

Week 9: 1st Quarter Review & Test / Research Paper Submission

Module 3: What's Going on Inside the Earth?

Week 10: Plate Tectonics

Week 11: Volcanoes & Earthquakes

Week 12: Earthquakes & Mountains

Week 13: Mountains & How We Date Rock Layers

Week 14: Fossils and What They Teach Us

Module 4: Let There Be Rocks

Week 15: Minerals and Igneous Rocks

Week 16: Sedimentary & Metamorphic Rocks

Week 17: How to Understand the Rocks Under Your Feet

Week 18: Rock Identification and 2nd Quarter Test

Module 5: All About Soil

Week 19: Resources, Weathering & Soil

Week 20: Types of Erosion on Land

Module 6: Earth's Features

Week 21: Oceans

Week 22: Moving Water

Week 23: Where Does the Water Go?

Week 24: Glaciers – Rivers of Ice

Module 7: How the Atmosphere Works

Week 25: What Makes Up the Atmosphere

Week 26: How Water Affects the Atmosphere

Week 27: Clouds and 3rd Quarter Test

Module 8: Weather

Week 28: Precipitation & Air Pressure

Week 29: The Wind is Blowing

Week 30: Weather Forecasting

Module 9: Big Weather & Climate

Week 31: Storms

Week 32: Temperature Changes

Week 33: What is Climate?

Module 10: Human Impacts on the Earth & 4th Quarter Test

Week 34: Is Our Climate Changing?

Week 35: Environmental Issues

Week 36: Review and 4th Quarter Test