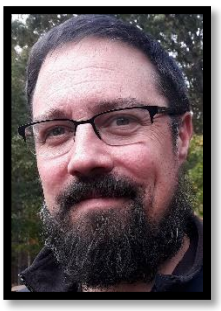
Earth Science

Yearlong, 2021-2022



ELIGIBLE STUDENTS:

Grades 7–9; 10th graders welcome: Students must be able to read independently and to create notes that are organized and easy to follow. Students should be able to express themselves effectively through writing, and must be capable of reviewing information and concepts on their own throughout the year outside of class. A foundation in arithmetic, including integer, fraction, and decimals, plus experience in basic algebra would be a plus.

Please note: Course includes multiple laboratory exercises in addition to in-class coursework. Lab reports will require time outside of class to complete.

Class Dates: Begin September 8, 2021 and concludes May 26, 2022
Class Times: M/W/Th 9:30AM-10:15AM, or M/W/Th 12:30PM-1:15PM (EST)
Instructor: Mr. Chris Hall
E-mail: chris@alwayslearningeducation.net

SCHEDULE FOR *EARTH SCIENCE:*

CLASS SESSIONS DATES:

Classes will take place on Mondays, Wednesdays, and Thursdays 9:30AM-10:15AM (EST) or 12:30PM-1:15PM (EST) **for 32 weeks and 98 classes on the following dates* --**

September (11): 8, 9, 13, 15, 16, 20, 22, 23, 27, 29, 30
October (12): 4, 6, 7, 11, 13, 14, 18, 20, 21, 25, 27, 28
November (10): 1, 3, 4, 8, 10, 11, 15, 17, 18, **[Thanksgiving Break]**, 29
December (8): 1, 2, 6, 8, 9, 13, 15, 16 **[Christmas Break]**
January (10): 10, 12, 13, 17, 19, 20, **[End 1st Semester]**, 24, 26, 27, 31
February (12): 2, 3, 7, 9, 10, 14, 16, 17, 21, 23, 24, 28
March (14): 2, 3, 7, 9, 10, 14, 16, 17, 21, 23, 24, 28, 30, 31
April (9): 4, 6, 7, **[Holy Week],** 18, 20, 21, 25, 27, 28
May (12): 2, 4, 5, 9, 11, 12, 16, 18, 19, 23, 25, 26 **[End 2nd Semester]**

**Please note the above dates and times are the anticipated class sessions for this course. However, all dates are subject to change as the instructor's circumstances might dictate (e.g. illness, family emergency). Any classes canceled by the instructor will be made up at an alternate time designated by the instructor.*

EARTH SCIENCE COURSE MAP:

Semester 1	Semester 2
Earth In Space	Weathering, Erosion, and Soils
Visualizing Earth	Surface Water and Groundwater
Thinking About Earth	Landforms
Matter and Minerals	Oceanography
Rocks and the Rock Cycle	The Atmosphere
Plate Tectonics and Mountain-Building	Weather
Volcanoes and Earthquakes	
	*As time permits, Climate and Air Pollution

OFFICE HOURS: In addition to scheduled class times, teachers will generally designate an optional weekly session as needed. During "Office Hours" students may raise questions, seek assistance, or review class material.

REQUIRED COURSE TEXTS AND MATERIALS:

- *Earth Science: God's World, Our Home*, 6th Ed., by Kevin Nelstead, Novare Science and Math
- Lab Kit for use with Novare Earth Science
- Notebook paper
- A binder or binder section devoted to the course
- Ruler
- Graph Paper
- A more complete list of lab supplies can be found here, which includes some of the materials found in the lab kit listed above. Instructor will provide more guidance as the course proceeds, as some labs may be added or omitted.

EARTH SCIENCE COURSE DESCRIPTION:

"The heavens are telling the glory of God; and the firmament proclaims his handiwork." (Psalm 19:1)

Creation sings the praise of God! Creation has a divinely appointed order to it, and this order ultimately points to Him and His glory. As such, we seek to appreciate and understand creation through the exploration of the sciences, and this appreciation leads us to treasure the natural world and teaches us truths about the God who made it.

The course will include time for lecture, during which the Socratic method will be employed to engage the students and to encourage them to think more deeply about the material rather than just absorb facts. Instructor-guided lab exercises will also be conducted during scheduled class time. While there is a wide range of material that will be covered about various Earth systems and natural processes, the course aims to excite a wonder that will motivate students in their study of the earth.

Students who read relevant sections of the text prior to class and take organized notes inside and outside of class during their independent study will benefit the most from class discussion, and flashcards complete with pictures and diagrams for key vocabulary and concepts are recommended.

Please note that the topic of the age of the earth will be touched on in this course. We will discuss and explore the data and processes that describe theories about Earth's origin and age. The reason for this exercise is simply to equip students to understand and be conversant in these theories to prepare them to engage with others who may or may not share their views. Please read more about our Faith and Culture here.

At Scholé Academy, we have carefully considered how we should engage our contemporary culture as those who believe that Christ is the Truth (John 14:6), and that all truth has its source in him. We think it is important to provide our upper school students (in grades 7-12) with tools and opportunities for critically examining various cultural trends, issues and mores through the lens of orthodox, Christian beliefs. Being confident in the truth revealed to us in creation, the Scriptures, and the tradition of the church, we are not afraid to follow the truth and its implications nor to address error and falsehood. … Read more about our Faith & Culture.

STUDENT EXPECTATIONS: EXECUTIVE FUNCTION SKILLS

Students enrolling in Scholé Academy's Earth Science course will be expected to show development of Executive Function Skills throughout the year. Executive Function Skills speaks to a set of qualities and skill sets students can develop and hone to better approach the courses, lectures, readings and teachers they will face in their future academic coursework.

Each teacher will invariably have his own set of requirements and skills he requires students to bring to their studies. *Generally* speaking, I believe there are five such qualities that are necessary for my students in various subjects:

1. An Engaged Student: One who is willing to step into the arena of class discussion, ask questions, supply answers, take in what is being discussed, and apply it to his own experience.

2. Note Taking: A student who during and after being engaged with the class has been trained to note important and relevant content in an organized fashion. His notes would then be consulted, independently, for application in assignments and assessments. For those who need a framework from which to begin or refine this process, Cornell notes is a helpful system.

3. Attention to Detail & Preparedness: Students should consistently adhere to deadlines, submission requirements, proper reporting formats (ex. lab reports), confirm technology is working prior to the start of class, determine how to proceed after an absence, be responsible for consulting his course syllabus and adjusting as the class proceeds, etc..

4. Employ Critiques: When students receive feedback to one of their submissions, they should apply that feedback to future assignments. Students should also glean information from the live class critiques to learn from the experience of others.

5. Initiative/Maturity: Students should hear the teacher comments and be able to assess whether or not the teacher was describing his work, and then take the initiative to schedule office hours with his teacher if necessary.

STUDENT EXPECTATIONS IN ACTION

Students are expected to arrive to class on time and with all assigned material completed. The instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student.

Students will be expected to listen attentively and to participate actively in class discussions and practices. During class discussion, students will review answers, pose questions, explain and justify their answers and solution. Each week the teacher will lead discussions informed by issues and problems raised by students, as well as issues introduced by the teacher.

Students who have not submitted their homework to the appropriate Schoology assignment folder prior to the start of class will not be permitted to join the live class session. Those students will be invited into a separate Zoom breakout room to work privately until they have completed the day's assignment. After they have completed their homework

submission, they will be permitted to rejoin the class in session. A day spent in a breakout room will constitute an absence from class.

All assignments will be due into the appropriate Schoology Assignment folder prior to the start of class each day. Students turning in late work will earn a 10% penalty for each day the assignment is late. Students will submit their work by scanning their homework pages and uploading it into the Schoology assignment window. Photographs of completed assignments will not be accepted as they are incredibly difficult to read.

STUDENT EVALUATION: GRADING

While studying *Earth Science* through Scholé Academy will be "restful" (and also an occasion for joy, awe, and wonder!), we also recognize the need to provide grades for students who will be using this course as part of their prepared college transcript. It's a delicate balance to achieve both restful learning and excellent academic performance. Earning a specific grade should not overshadow achievement goals for mastery of this discipline. Earth Science seeks to feed and focus the natural curiosity of students, imparting not only a wealth of knowledge, but also developing skills in young natural philosophers (scientists who apprehend and apply the greater vision of God's handiwork in nature) that will serve them well as they go on to explore advanced studies in the field. In that sense then, mastery of the understandings, methods, and contexts is its own reward in and of itself.

As the teacher I can assign the following grades to your student's level of achievement: *magna cum laude* (with great praise); *cum laude* (with praise); *satis* (sufficient, satisfactory) and *non satis* (not sufficient).

Ideally, every average student working diligently should do praiseworthy work (cum laude). Those who excel beyond this expectation will be the *magna cum laude* students. Students who do adequate but not praiseworthy work be designated *satis*. *Non satis* means lacking sufficiency or adequacy.

Inasmuch as you might be fully on board with this grading method in theory, there will undoubtedly be the need to complete a college transcript with either a numeric or traditional letter grade. Traditional percentage grades will be provided and will be readily accessed on the *Earth Science* Schoology page. Additionally, Mr. Hall will provide a transcript of that grade to the requesting parent at the end of the year.

STUDENT EVALUATION: MASTERY PORTRAIT

Mastery portrait: Students who are prepared to take this class are typically early to late teens, adolescents approaching young-adulthood. This developmental stage is an interesting one, brimming with lots of new characteristics. It's imperative, then, that this course not only provide the academic components necessary to achieve mastery of the content of the class (knowledge) and skills associated with analytical though, but to also help engage the student in development of their moral virtues. These aspects of the course would comprise the "learning target".

- Students will be able to describe, explain, and connect the key facts and concepts related to (but not limited to):
    - Earth within space and time
    - Matter
    - Rock formation, and processes related to rock formation that occur within the Earth
    - Earth's crust, and how it is formed
    - The processes by which scientists collect data about the Earth and the tools they use to do so.

- Processes that shape the Earth's surface
- Earth's oceans
- Earth's atmosphere

- Students will be able to demonstrate knowledge of the Scientific Process, particularly how to formulate and test a hypothesis, interpret and analyze data, and draw an articulate conclusion.
- Students will be able to express themselves in written and spoken forms using proper terminology and lines of reasoning inherent to the discipline of science and natural philosophy.

STUDENT EVALUATION: ASSIGNMENTS, TYPES & WEIGHTS

Mr. Hall will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. The teacher will provide students with more detailed information and access to the Earth Science course page.

Student's grades will be comprised of:

1. Exams: 40% of the grade
2. Quizzes: 15% of the grade
3. Lab Work: 20% of the grade
4. Assignments: 15% of the grade
5. Class Participation: 10% of the grade

STUDENT EVALUATION: ACADEMIC DISHONESTY

Students will often take assessment tests and/or quizzes privately at home. Students are on their honor to abide by Scholé Academy's Learning Philosophy which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook.

Additionally, plagiarism is a serious and punishable offense. Proper citation of all sources is essential to the academic endeavor. Remember to cite any source if the information is not common knowledge or is an opinion obtained through any source. A plagiarized assignment will result in a failing grade. Students should consult their chosen style manual (see Student Expectations above) for specific direction on obtaining, quoting and paraphrasing sources.

THE VIRTUAL CLASSROOM:

We will be using the free online "virtual classroom" software provided by Zoom, one of the leading companies that provides such software. The virtual classroom will provide students with interactive audio, text chat and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the Technology in the Classroom section of the Student Parent Handbook.

Students will submit documents by scanning and uploading them to their personal computer, then attaching those files as .pdfs to an email. They will submit their work to the *Earth Science* Schoology assignment page (access granted after enrollment is secured).

ABOUT THE INSTRUCTOR:

Chris Hall has a BA in philosophy from Gettysburg College and an MAT in elementary education from Towson University. He has been a classroom educator and administrator for 25 years, having served in public, independent, and classical schools. In that time, he has served as a classroom teacher in grades K-12, primarily as a science educator, PK-8 Science Department Chair, and a Lower School Academic Dean. Along with his professional pedigree, he is a lifelong practitioner of several of the common arts profiled in his book *Common Arts Education: Renewing the Classical Tradition of Training the Head, Hands, and Heart* (Classical Academic Press, 2021) and the founder of Always Learning Education, an organization dedicated to teaching, learning, and propagating the common arts. He lives on a small, homesteaded farm in central Virginia with his wife and three homeschooled sons.