



## *Earth Science*

### Yearlong 2020/2021



#### **ELIGIBLE STUDENTS:**

**Grades 7-9 (10th Graders welcome):** Students must be able to read independently and be able to create notes that are organized and easy to follow. Students should be able to express themselves effectively through writing, and they must be able to remain focused and diligent, reviewing information and concepts on their own throughout the year.

**Please note:** Course includes multiple laboratory exercises in addition to other course work. Lab reports will likely require some time outside of class to complete.

**Class Dates:** Course begins September 8, 2020 and concludes May 28, 2021.

**Class Times:** MWF / 11:00am - 12:15pm (EST)

**Instructor:** Lauren O'Bryan

**E-mail:** [lobryan.scholeacademy@gmail.com](mailto:lobryan.scholeacademy@gmail.com)

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#### SCHEDULE FOR *EARTH SCIENCE*:

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#### **CLASS SESSIONS DATES:**

**Classes will take place on Monday, Wednesdays & Fridays: 11:00am - 12:15am (EST) for 32 weeks and 96 classes on the following dates\* --**

**September (10):** 9, 11, 14, 16, 18, 21, 23, 25, 28, 30

**October (13):** 2, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 28, 30

**November (10):** 2, 4, 6, 9, 11, 13, 16, 18, 20, [Thanksgiving Break], 30

**December (8):** 2, 4, 7, 9, 11, 14, 16, 18, [Christmas Break]

**January (9):** [Christmas Break], 11, 13, 15, 18, 20, 22 [End 1<sup>st</sup> Semester], 25, 27, 29

**February (9):** 1, 3, 5, 8, 10, 12, 15, 17, 19, [Winter Break]

**March (11):** 1, 3, 5, 8, 10, 12, 15, 17, 22, 24, 26, [Holy Week]

**April (12):** [Holy Week], 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 28, 30

**May (11):** 3, 5, 10, 12, 14, 17, 19, 21, 24, 26, 28 [End 2<sup>nd</sup> 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:**

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### **Unit 1: Our Place in Time and Space**

- Earth In Space (1)
- Visualizing Earth (2)
- Thinking about Earth (3)
- Matter and Minerals (4)

### **Unit 2: Inside the Earth**

- Rocks and the Rock Cycle (5)
- Plate Tectonics and Mountain Building (6)
- Volcanoes and Earthquakes (7)

### **Unit 3: Earth's Crust**

- Weathering, Erosion, & Soils (8)
- Surface Water and Groundwater (9)
- Landforms (10)

\*\* Unravelling Earth History (11) - will cover as time permits

### **Unit 4: On and Above the Earth**

- Oceanography (12)
- The Atmosphere (13)
- Weather (14)

\*\* Climate and Air Pollution (time permitting) (15)

**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). The course text is available from Classical Academic Press ([www.ClassicalAcademicPress.com](http://www.ClassicalAcademicPress.com)).
- *Lab Kit for Use with Novare Earth Science*. Can be found at [homesciencetools.com](http://homesciencetools.com).
- Notebook paper and a binder devoted to the subject
- 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:**

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*“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](#).

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### **STUDENT EXPECTATIONS: EXECUTIVE FUNCTION SKILLS**

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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, there are five such qualities that are necessary for students in various subjects:

- 1. An Engaged Student:** One who is willing to step into the arena of class discussion, ask questions, supply answers, and take in what is being discussed and apply it to himself.
- 2. Note Taking:** A student who during and after being an engaged participant in the class is able to note important and relevant content in an organized fashion (students may find the Cornell note taking system helpful). His notes would then be consulted, independently, for application in assignments and assessments.
- 3. Attention to Detail & Preparedness:** These students are ones who consistently adhere to deadlines and submission requirements, adhere to style guides and codes, confirm technology is working prior to the start of class, have lab supplies ready on the appointed days for lab exercises, take it upon themselves to reach out and determine how to proceed after an absence, are responsible for consulting his course syllabus and

adjusting as the class proceeds, etc.

**4. Employ Critiques:** These students are ones who receive feedback to one of their submissions, and then are self motivated to apply that feedback to future assignments and learn from mistakes. These students also glean information from the live class critiques of fellow students and note mistakes to avoid by learning from others. The student displays courage, humility and perseverance in learning and realizes that mistakes are often an inseparable part of the learning process.

**5. Initiative/Maturity:** This student would hear the teacher's comments, 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.

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### STUDENT EXPECTATIONS IN ACTION

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In this class, students will be expected to listen attentively, participate actively in class discussions and practices. Students are expected to arrive to class on time, with all assigned material and reading completed ahead of time. 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 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.

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### STUDENT EVALUATION: GRADING

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While pursuing the *Earth Science* through Scholé Academy will be "restful" (and hopefully an exercise in joy 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 budding young scientists that will serve them well as they go on to explore more specific fields of science in their studies. In that sense then, mastery of the methods of scientific exploration and a thorough understanding

of basic natural processes is a reward in and of itself. I can assign the following grades to the 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 will 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, Mrs. O'Bryan will provide a transcript of that grade to the requesting parent at the end of the year.

### **STUDENT EVALUATION: MASTERY PORTRAIT**

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Mastery portrait: Students who are prepared to take this course are typically at the stage where they have a good foundation in the organization and articulation of information as it pertains to something very natural to them - language. They are now learning how to apply the skills they have gained thus far to goodness, truth, and beauty as they pertain to matter and natural processes within the confines of space and time. It is also important that this course not only provides the academic components necessary to achieve mastery of the content of the class (knowledge) and skills associated with analytical thought; but to also help engage the student in development of their moral virtues. These three aspects of the course would comprise the "learning target".

- At the completion of this course *cum laude* students will be able to describe and explain the relationships between key facts, concepts, and connections as they pertain to (but are not limited to):
  - Earth within space and time
  - Matter
  - Rock formation and processes occurring within the earth
  - Earth's crust and how its characteristics are formed
  - How scientists collect data about the earth and the tools they use to do so
  - Different processes occurring on the earth's surface
  - Earth's oceans
  - Earth's atmosphere
- Additionally, students will have a working knowledge of how to formulate and test a good hypothesis, as well as how to organize and interpret data. Students will increase their skill in articulating their findings.
- Finally, students will grow in the virtues of humility, patience, temperance and perseverance as they encounter difficult material, engage with it earnestly, and seek help when needed.

## **STUDENT EVALUATION: ASSIGNMENTS, TYPES & WEIGHTS**

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Mrs. O'Bryan 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.

Students' grades will be comprised of:

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

## **STUDENT EVALUATION: ACADEMIC DISHONESTY**

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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:**

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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:**

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**Lauren O'Bryan** was born and raised in central Oklahoma, relishing all that creation has to offer through camping, fossil hunting, weather watching and attending Oklahoma City Astronomy Club events. She received a B.S. in Meteorology at the University of Oklahoma in 2014. Motivated by a desire to put her knowledge to use for service, she provided forecasts and voyage plans for mariners as part of a large global company. However, she missed the classroom and the joy that comes from getting to know new corpores of knowledge. After marrying an "armchair classicist", she cultivated a burgeoning interest in classical education, which only continued to grow after she was blessed with a son in 2019. This interest led her to become involved in the Servi Institute, and ultimately led her to the Scholé Academy.