Chesapeake Bay Governor's School
Student Information for Foundations of Science
RCC SCT 111/112, 4 credits/semester, 8 credits total
1 high school credit
Mrs. Bethany Smith
Warsaw Campus, Fall and Spring 2016-2017

CBGS-Warsaw: (804) 333-1306; Monday-Friday 7:30 am – 3:00 pm
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Course Description and Objectives

Students will be able to: explain the formation of the Earth; discern its internal structure and function of lithosphere, asthenosphere, core; predict the behavior of earthquakes and hazards at plate tectonic boundaries; discuss the rock cycle and igneous, sedimentary and metamorphic rock formation; identify surface processes that physically and chemically weather rock; locate the geological provinces of Virginia; identify geological resources and resource extraction; predict effect of various extraction methods on surrounding environment and water resources; understand how Earth's climate has changed over geologic time through natural forcing; analyze difference between natural and anthropogenic climate forcers; identify chemical nature and sources of greenhouse gases.

Students will be able to: conduct internet searches for scientific information identifying and using unbiased, scientific sources; create spreadsheets, enter and analyze data using Excel; create graphs; create and present using PowerPoint; word processing of written papers with embedded graphics, data tables and source citations in CBGS/VJAS format.

Course Learning Sequence:

Weeks 1-2 Introduction: Nature of Science, Scientific Method

Weeks 3-9 Introductory Geology: Origin of the Universe, Earth formation, Wegener's Continental Drift**,** Plate tectonics and the Rock Cycle**,** Fundamentals of physical geology, Geologic History of Virginia, Geologic Resource Extraction and related environmental impacts

Weeks 10-18 Earth Cycles and Climate Change: Earth's place in the solar system, planetary atmospheres, Natural climate changes due to Earth cycles- Milankovitch, Solar cycles, Modern Climate Change, anthropogenic effects, atmospheric changes, albedo effects, Earth's Carbon Cycle, Consequences of Climate Change, global warming, sea level rise, Climate change mitigation- green infrastructure, energy efficiency, alternative energy.

Weeks 19-27 The Hydrologic Cycle- watershed controls (hydrology, geology, climate)**,** Water chemistry and water quality monitoring**,** Human impacts on water quality and quantity, pollution sources and mitigation, Groundwater and surface water resources, threats to sustainability and quality**,** Best management practices related to water use.

Weeks 28-36 Field Study- Watershed Ecology of Virginia's Geologic Provinces- students explore the connections between watershed and the geologic underpinnings of Virginia from the Blue Ridge to the Coastal Plain. Karst geology and watershed issues**,** The Effect of Human Population on land and water use,sustainability Environmental effects of increasing global population, population of the Chesapeake Bay and the local region. *Assessment of future trends based on data from Virginia and Chesapeake Bay region

(*Strong emphasis on use of technology for data analysis, graphing, word processing and presentation)

Texts: Living in the Environment, Miller (14th Edition)
Nature's Fortune, Mark Tercek & Jonathan Adams

Required Materials: A 3-ring binder devoted solely to Foundations. You should have dividers so you can separate sections for notes/handouts, graded papers, and research. You should have pens & pencils and a calculator handy. You will also need a composition bound notebook to serve as your journal and a "write in the

rain" notebook (this will be your field notebook), this MUST be taken on all field trips. After certain field trips/activities I will collect and grade your journal and/or field notebook.

A Schoology account that you check regularly. Schoology is the means through which CBGS course information, announcements and grades are communicated to you. Please set-up your Schoology account to notify you of new postings, and check it frequently so you will always have access to the most up-to-date information. I will post notes, hand-outs, activities and assignments there. Additionally, you may also have assignments to submit through Schoology and occasional quizzes to complete there. You can also send me messages through Schoology.

Course Expectations:

1.) Be respectful of your fellow students and instructor. Listen carefully to your colleague's thoughts and ideas. We will foster a learning community through which we can all learn from each other. Additionally, be careful stewards of the environment and the organisms living in it while on field trips.
2.) Follow school rules, treat equipment carefully, and follow instructor's safety rules in the lab and field.
3.) Come to class every day on time and ready to participate! You should be prepared for all class discussions and debates and ready to take notes and ask/answer questions as they arise.
4.) In the field, you should be prepared to get wet and dirty, and make sure to bring your adventurous attitude.
5.) Use Schoology to access course information, notes, assignments, reminders and your grades. You can also use Schoology to communicate with me.

Grading: Your quarter/semester grade will be based on a point system. You can determine your average by taking the points you earned and dividing them by the total possible points. An end of semester exam (test, paper, project) will count as 10% of the semester grade. The CBGS grading scale is listed in the CBGS Student Handbook. Your grades on assignments will be posted in Schoology. Stay on top of your assignments! There will be a 2 point per day late penalty for all work turned in late. Work submitted more than 1 week late, or classwork turned in after we have gone over it in class will generally result in a completion grade of 50 %.

Attendance: Attendance is required in both class and on field trips. If you are absent you are responsible for your missed assignments. Get any notes you missed from a friend or from Schoology, and be sure to check for any handouts and assignments. Check Schoology, you should be able to easily figure out what you missed. Make all efforts to get to class on time. Excessive tardies disrupt your learning as well as the class.

Make-up Work: Assignments that were due the day of your absence are due the day you return to school. Some assignments may have Schoology submissions and can be submitted even in your absence. Exams/ quizzes are due within 1 week of your return. It is your responsibility to schedule a time for a make-up exam or quiz. If you need more time, or have an extended absence, please talk to me so we can make arrangements to work with you.

Homework/Projects: You will not usually receive daily homework in Foundations. Many times you will begin an assignment in class and be asked to finish it or do some follow-up questions in time for our next class meeting. I will post assignments and worksheets to Schoology as well. If you are absent on the due date, the assignment is due the day you return, even if we do not meet for class (hand to me or put in my mailbox)

Cell Phone Policy: All cell phones and other electronic devices should be silenced and stowed during lecture/lab/field trips. They are not to be taken out or used during any of these times unless approved by the instructor. Please review the cell phone expectations in the student handbook.

Honor Code: Academic honesty, respect, trust, integrity, and responsibility are underlying core values that support the Honor Policy and Honor Pledge of the Chesapeake Bay Governor's School. Failure to abide by the Honor Policy will result in disciplinary action as detailed in the Honor Policy in the Student Handbook.