

Roy C. Ketcham High School – Mr. Delaney
Earth and Space Science: 2024-2025
Contact: mark.delaney@wcsdny.org
Course Number S341 Credits: 1 Rank Weight: 1.0

Office: 298-5100 Ext. 31065
Prerequisites: successful completion of Living
Environment Classroom: 294

COURSE OF STUDY:

Earth and Space Science is a New York State Regents course that requires extensive study time, regardless of instructional methods such as hands-on laboratory investigations or digital resources. Instruction will take place using a variety of methods. We will be utilizing Google Classroom, so it is imperative that students log into the Classroom site each day to receive new instruction, announcements, and learning activities. Learning will take place both individually and in a cooperative classroom environment, with an emphasis placed on performance and problem-solving techniques. Multiple learning styles are present in this class, so instruction will take place using a variety of methods. Earth and Space Science includes 5 major units of study, as well as the science practices that accompany our studies, as follows (%'s are ranges these units will comprise the exam):

1. Space Systems (20-31%)

- a. Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.
- b. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
- c. Communicate scientific ideas about the way stars, over their life cycle, produce elements.
- d. Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

2. History of the Earth (11-20%)

- a. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
- b. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
- c. Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

3. Earth Systems (20-31%)

- a. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
- b. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
- c. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
- d. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
- e. Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.

4. Weather and Climate (11-20%)

- a. Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
- b. Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

5. Human Sustainability (20-31%)

- a. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
- b. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost benefit ratios.
- c. Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.
- d. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
- e. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity

6. Engineering, Technology, and the Applications of Science (3-9%)

LAB REQUIREMENTS:

You will be in lab every other school day. During a laboratory session, students must be prepared to work for the entire length of two normal periods (about 90 minutes). All students in a Regents science course must complete the laboratory requirement of 1200 minutes (20 hours) of satisfactory lab work prior to entry into the Science Regents Exam. A student not in compliance with the lab requirement will not receive a passing grade for the course and will be barred from the

Regents exam. You will be notified if there are any deficiencies in required lab activities at each 5-week grade report interval. In addition, there are 3 new required NYS Earth and Space Science laboratory activities that each will be conducted over several days of instruction. These MUST be completed, so they must be made up if missed. ALL required lab work must be completed and be acceptable by May 30th, 2025 or the student will not be allowed to take the Regents Exam given on June 10th, 2025. Simply put, the completion of lab work is not optional; it is the essential learning mechanism for this course.

EVALUATION: Students will be evaluated each quarter through various means:

Student Class Performance Quizzes & Tests Laboratory Reports Homework Assignments Earth Science Projects (as per teacher) Extra Credit Projects

Final Course Grade:

First Marking Period = 25% Second Marking Period = 25% Third Marking Period = 25% Fourth Marking Period = 25%
Final Regents Exam Grade = 0% (Required to earn Regents and Advanced Regents Diplomas)

This course requires you to put extra time and effort into your academic studies. Lab work turned in early or on time will be eligible for the maximum point value. Late labs/homework assignments will be reduced in value! Students who miss a lab or homework assignment due to absence are responsible to make immediate arrangements with the teacher to schedule a make-up date & time. Grades are assessed equally for all students, so you alone are responsible for your grade. Always try to do your best and achieve as much as possible.

MATERIALS NEEDED EVERY DAY:

1. A 3-ring binder dedicated to Earth Science 2. Assignment Pad (or student planner) 3. Pen and pencil in working order 4. A notebook brought every day to class 5. Earth Science Reference Tables (provided) 6. Solar calculator with memory (a \$1 model is fine) 7. Review book (provided) 8. Textbook (provided)

CONDUCT:

We will be working within the confines of a cooperative learning classroom and mature, responsible behavior is expected at all times. Students will COOPERATE if they wish to remain in this classroom setting. Certain labs require the use of sharp objects and/or chemicals. Hence, there is absolutely no tolerance given to horseplay or other immature behavior. Warnings will not be given for this, so be aware of your behavior at all times!

Exam Structure:

NYS has provided the following information as it relates to the structure of the exam:

All questions on the Science Regents Examinations are organized into clusters of questions that follow an assessment storyline. Question clusters include an introduction (which informs students of how many questions are a part of the cluster), multiple stimuli (reading passages, data tables, graphs, diagrams, photos, etc.), and questions that draw on one or more of the stimuli. The questions within the cluster will include multiple-choice and constructed-response questions. There will be variation in the number of questions that make up each cluster depending upon the assessment storyline; as a result, there may be slight variation in the total number of exam questions.

It is expected that all students will take the Regents exam. Contact your guidance counselor for specific requirements based on the diploma you are seeking. In addition, the exam score may be used for a portion of the 4th quarter average (TBD). Again, if the student has not completed the necessary lab requirement, then the student will not be allowed to take the Regents Exam this year. To achieve Regents credit, a student must achieve an overall grade of 65 or higher including a 65 or higher on the Regents Earth and Space Science Exam, unless otherwise modified by NYSED.

STUDENT/PARENT (GUARDIAN) AGREEMENT

- ☐ WE HAVE READ THE REGENTS EARTH SCIENCE COURSE OUTLINE AND THE GRADING PROCEDURE. WE UNDERSTAND THE CLASS REQUIREMENTS, GRADING PROCEDURES, CLASS RULES, AND STUDENT EXPECTATIONS.
- ☐ AS A STUDENT, I AGREE TO DO MY BEST ALL YEAR LONG AND TO APPLY MYSELF AT ALL TIMES, AND TO GET MY WORK DONE ACCURATELY AND TURNED IN ON TIME. I ALSO AGREE TO ALWAYS BE HONEST AND NEVER COPY ANYONE ELSE'S WORK.
- ☐ AS A PARENT/GUARDIAN, I AGREE TO CHECK MY CHILD'S WORK REGULARLY FOR NEATNESS AND COMPLETENESS, TO CHECK HIS/HER ASSIGNMENT PAD, AND TO INFORM THE TEACHER IF I NEED A CONFERENCE WITH HIM OR HER.

PARENTS (please PRINT): _____ PARENTS

(please SIGN): _____ DATE: _____ STUDENT (please

SIGN): _____ DATE: _____