

**Physical Geology 1303/1304: Earth & Space Science (Dual Credit)**  
**August 16, 2021**  
**Fall Semester 2021**

Michelle Bompezzi Phone: 806-705-5368  
Room: 1016

Email: [mbompezzi@frenship.us](mailto:mbompezzi@frenship.us)

Conference: Blue Day 4<sup>th</sup> Period & Gold Day 7<sup>th</sup> Period

**Course Description:**

This is a yearlong course that will cover physical geology in the fall semester and historical geology in the second semester. Physical geology will include such topics as mineral identification and use, rock identification, identifying landforms, weathering and erosion, and plate tectonics. Historical geology will include Earth's geologic history, relative and absolute dating of events and objects based on stratigraphy, weather and climate, and Earth's role in the Solar System and Universe.

**Course Approach and Expectations:**

The majority of work done in this class is project-based with an emphasis on collaboration. It is my goal to create future scientists and leaders who can work well independently and as part of a team. I will provide notes at the beginning of a unit to be used as study material for tests and quizzes. The rest of the work will be done independently or in collaborative groups through Schoology. There will be many projects that have a presentation element as well. I feel this is beneficial because public speaking is a necessary 21st century skill that must be practiced. Students are expected to attend all classes, be on time, bring all necessary materials (laptop, paper, pens/pencils, notebook, etc.), and be ready to work. We will have fun, but we will work hard so your participation and focus will be necessary for your success!

**Grading:**

90 - 100 = A

80 - 89 = B

70 - 79 = C

69 and below = F

Daily Work - 60%

Assessments - 40%

**\*Final\*** - All students are required to take the final during the **week of December 6<sup>th</sup>** which will average in toward your final grade. **Exact date to be announced.**  
Late work will be accepted within a reasonable amount of time however, you will lose 5 points each day it is late and you forfeit your ability to make corrections or redo the assignment.

**Attendance Policy:**

Students are required to attend all classes. We will follow FHS attendance policy and procedure. It is your responsibility to ask a classmate about what you missed and make time to come in if necessary to make up assignments. All assignments will be posted in Schoology!

**Field Trips:**

I am planning two field trips, one each semester. More info to come! Class dues of \$10 will be required before students can attend the trip. It is not mandatory to attend the trip, but class dues must be paid in order to attend.

**Course Content:**

<p><b>Introduction: Scientific Method &amp; Safety Review (2 blocks) 8/16-19</b>  <b>Target Test Date: 8/19</b></p>	<p><b>Unit: 1 Rocks and Minerals (8 blocks) 8/20-9/13</b>  <b>Target Test Date: 9/13</b></p>
<p>2(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;  2(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories;  2(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but may be subject to change as new areas of science and new technologies are developed;  2(D) distinguish between scientific hypotheses and scientific theories</p>	<p>12(A) evaluate how the use of energy, water, mineral, and rock resources affects Earth's subsystems;  12(B) describe the formation of fossil fuels, including petroleum and coal;  12(C) discriminate between renewable and nonrenewable resources based upon rate of formation and use;  12(D) analyze the economics of resources from discovery to disposal, including technological advances, resource type, concentration and location, waste disposal and recycling, and environmental costs; and  12(E) explore careers that involve the exploration, extraction, production, use, and disposal of Earth's resources.</p>
<p><b>Unit: 2 Weathering and Erosion (6 blocks) 9/14-30</b>  <b>Target Test Date: 9/30</b></p>	<p><b>Unit: 3 Hydrosphere and Topography (5 blocks) 10/1-15</b>  <b>Target Test Date: 10/15</b></p>
<p>11(A) compare the roles of erosion and deposition through the actions of water, wind, ice, gravity, and igneous activity by lava in constantly reshaping Earth's surface;  11(B) explain how plate tectonics accounts for geologic surface processes and features, including folds, faults, sedimentary basin formation, mountain building, and continental accretion;  11(E) evaluate the impact of changes in Earth's subsystems on humans such as earthquakes, tsunamis, volcanic eruptions, hurricanes, flooding, and storm surges and the impact of humans on Earth's subsystems such as population growth, fossil fuel burning, and use of fresh water.</p>	<p>13(A) quantify the components and fluxes within the hydrosphere such as changes in polar ice caps and glaciers, salt water incursions, and groundwater levels in response to precipitation events or excessive pumping;  13(E) investigate the causes and history of eustatic sea-level changes that result in transgressive and regressive sedimentary sequences;  13(F) discuss scientific hypotheses for the origin of life by abiotic chemical processes in an aqueous environment through complex geochemical cycles given the complexity of living systems.  11(D) interpret Earth surface features using a variety of methods such as satellite imagery, aerial photography, and topographic and geologic maps using appropriate technologies;</p>

	15(C) quantify the dynamics of surface and groundwater movement such as recharge, discharge, evapotranspiration, storage, residence time, and sustainability;
<b>Unit: 4 Plate Tectonics (7 blocks)</b> <b>10/18-11/4 Target Test Date: 11/4</b>	<b>Unit: 5 Deformation (12 blocks)</b> <b>11/5-12/15 Target Test Date: 12/9</b>
<p>6(D) evaluate the evidence that Earth's cooling led to tectonic activity, resulting in continents and ocean basins.</p> <p>9(A) evaluate heat transfer through Earth's subsystems by radiation, convection, and conduction and include its role in plate tectonics, volcanism, ocean circulation, weather, and climate;</p> <p>9(B) examine the chemical, physical, and thermal structure of Earth's crust, mantle, and core, including the lithosphere and asthenosphere;</p> <p>9(C) explain how scientists use geophysical methods such as seismic wave analysis, gravity, and magnetism to interpret Earth's structure; and</p> <p>9(D) describe the formation and structure of Earth's magnetic field, including its interaction with charged solar particles to form the Van Allen belts and auroras.</p> <p>10(A) investigate how new conceptual interpretations of data and innovative geophysical technologies led to the current theory of plate tectonics;</p> <p>10(B) describe how heat and rock composition affect density within Earth's interior and how density influences the development and motion of Earth's tectonic plates;</p> <p>10(E) distinguish the location, type, and motion of convergent, divergent, and transform plate boundaries using evidence from the distribution of earthquakes and volcanoes; and</p> <p>10(F) evaluate the role of plate tectonics with respect to long-term global changes in Earth's subsystems such as continental buildup, glaciation, sea level fluctuations, mass extinctions, and climate change.</p>	<p>10(C) explain how plate tectonics accounts for geologic processes and features, including sea floor spreading, ocean ridges and rift valleys, subduction zones, earthquakes, volcanoes, mountain ranges, hot spots, and hydrothermal vents;</p> <p>10(D) calculate the motion history of tectonic plates using equations relating rate, time, and distance to predict future motions, locations, and resulting geologic features;</p> <p>11(A) compare the roles of erosion and deposition through the actions of water, wind, ice, gravity, and igneous activity by lava in constantly reshaping Earth's surface;</p> <p>11(C) analyze changes in continental plate configurations such as Pangaea and their impact on the biosphere, atmosphere, and hydrosphere through time;</p> <p>11(E) evaluate the impact of changes in Earth's subsystems on humans such as earthquakes, tsunamis, volcanic eruptions, hurricanes, flooding, and storm surges and the impact of humans on Earth's subsystems such as population growth, fossil fuel burning, and use of fresh water.</p>

**Student Disability Services:**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of

disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student's responsibility to initiate such a request by contacting:  
Ms. Dallas A. Swafford  
Director of Student Disability Services  
325-942-2047  
dallas.swafford@angelo.edu  
Houston Harte University Center

**Title IX Statement:**

Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU's Title IX Coordinator:  
Michelle Nicole Boone, J.D.  
Director of Title IX Compliance  
Michelle.boone@angelo.edu  
325-486-6357  
Mayer Administration Building 204

**Student Absence for Observance of Religious Holy Days:**

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.

**Incomplete Grade Policy:**

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

## **Student Conduct Policies:**

### Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

### Plagiarism

Plagiarism is a serious topic covered in ASU's Academic Integrity policy in the Student Handbook.

Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation

marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.

### Copyright Policy

Students officially enrolled in this course should make only one printed copy of the given articles and/or

chapters. You are expressly prohibited from distributing or reproducing any portion of course readings

in printed or electronic form without written permission from the copyright holders or publishers.

## **General Policies Related to This Course:**

All students are required to follow the policies and procedures presented in these documents:

Angelo State University Student Handbook

Angelo State University Catalog