PROGRAM-LEVEL OUTCOMES (GS courses must meet at least one program-level outcome)

Students can:

1) Evaluate information appropriate to the task;
2) Apply principles of critical thinking to demonstrate integrative learning;
3) Communicate effectively in spoken form;
4) Communicate effectively in written form;
5) Analyze cultural issues within a global context.
6) Evaluate in context significant concepts relating to democracy.

III. DISTRIBUTION

(Distribution courses must meet learning outcome #1 and a majority of the remaining outcomes in their respective category.)

Natural Sciences outcomes

Students can:

1) Articulate the relevance of the Natural Science course to their general education.
2) Explain how knowledge of natural science is applicable to their lives.
3) Apply appropriate scientific methodology within one of the natural sciences.
4) Evaluate the validity and limitations of scientific theories and claims.
5) (Required for lab courses only) Analyze scientific data acquired through laboratory experiences in one of the natural sciences.

Assignment to the student

Part 1. Answer each question with a single, *brief* paragraph:

1) Please explain the relevance of this class to a generally-educated person. (*NS 1*)

2) Please explain how knowledge from this class is applicable to **your** life. (*NS 2*)

Part 2. Read the following passage:

< Instructor will insert their selected passage here >

Write a 200-400 word essay that describes how you could study an area related to any part of the above information. Make sure to include any limitations of such a study and to use specific examples from this course. You may use information from other courses if you wish. (*NS 2, 3, 4*)

***Lab Courses Only Assignment**

Instructors can choose to evaluate one of their already developed laboratories focused on analyzing or interpreting data relevant to a natural sciences discipline.

Instructors can choose from one of 4 passages to assign the students:

Passage 1.
The ozone layer contains about 90% of atmospheric ozone and is located in the stratosphere. It is vital to human well-being because it shields us from harmful ultraviolet radiation from the Sun. In the mid-1970s, it was discovered that chlorine atoms released from CFCs were destroying ozone and depleting the ozone layer. As a result, there was an increase in ultraviolet radiation at the Earth's surface. Ultraviolet radiation is a high energy electromagnetic wave that can ionize atoms and molecules within the body increasing the probability of skin cancer and eye cataracts. The most severe loss of ozone occurred over Antarctica during the springtime and is known as the "ozone hole". In response, the Montreal Protocol was written to address this global issue. As a result of compliance to the Protocol and its Adjustments, the accumulation of ozone depleting gases has slowed and begun to decrease.

Passage 2.
Dangerous radiation like gamma rays and x-rays are at the far end of the electromagnetic spectrum. Fortunately the earth's atmosphere filters out most of this dangerous light radiation. As a result many deep space objects like gamma ray emitters and x-ray bursters weren't discovered until the late 1970's when astronomers placed the first high energy radiation telescopes in space. Many of these telescopes have been placed in low earth orbit between 160 and 2000 km above the earth's surface. Unfortunately this area is populated with discarded weather, military and navigation satellites as well as spent rocket stages. Through collisions, erosion and disintegration, there is now estimated to be over 300,000 pieces of space debris in low earth orbit ranging in size from micrometers to several meters. When it comes to new telescopes, NASA may not be asking 'can we afford it?' instead they may have to ask 'is there a safe place to put it?'

Passage 3.
Maps of the United States that show levels of risk related to natural hazards (earthquakes, volcanoes, mass movements, lightning, floods, tornadoes, hurricanes, blizzards, severe cold, heat, and drought) reveal that there are very few if any places that are "risk free." Thus, all human activity, from housing to work to recreation, exposes people to some level of risk from the natural environment. People must therefore understand the specific natural hazards associated with the places where they wish to live, work, and play. Likewise, governments must also understand the nature of natural disasters in order to help citizens minimize the risk they are exposed to. And yet, natural disasters occur in our country every year.

Passage 4.
According to the Center for Disease Control the life expectancy for a United States citizen in 2013 was 78.8 years. However, many environmental and genetic factors can cause people to die sooner or live longer. Scientific research has allowed us to better understand why disease occurs and how they can be prevented. Among the leading causes of death are heart disease, cancer, neurological disease and microbial infections.