

Learning Outcome 1:

The assignments and projects listed under this learning outcome show and describe the complexity of earth's biosphere and analyze the relationship between human societies and natural communities and processes.

1. BIOL 131 Assignment/Worksheet: This assignment shows the scale of evolution and the major events in earth's history. This assignment meets the learning outcome by showing how complex the earth and its history is. This can be related to human societies because the assignment had me create an image metaphor for the timeline of earth's history. I used a human measurement, a horse racing track, to demonstrate the timeline of earth's history.
2. The Great Barrier Reef Assignment: The great barrier reef is one of the most biologically diverse ecosystems in the world. This assignment meets the learning outcome by showing how complex this ecosystem is, and what animals and plants grow there. The Great Barrier reef has a primarily negative relationship with human societies that the project outlines. Humans are having a huge impact on the Great Barrier reef which is leading to detrimental effects on the coral reef such as coral bleaching.
3. Wetland Delineation Assignment: Historically human societies have seen wetlands as wastelands and dumps with no ecological value. In recent years human societies have started to value wetlands and the important benefits they have on our environment. This assignment meets the learning outcome by demonstrating how complex a wetland habitat is and why it is important to study and delineate wetlands.
4. Environmental Toxicology Assignment: This assignment wanted me to analyze water chemistry in a stream. Streams are very complex and diverse ecosystems. Humans have a direct impact on streams through pollution, run off and many other impacts. Historically humans have also used streams for a source of food and water. It is important that streams are protected. By taking water chemistry samples one can understand what chemicals are having an impact on the stream ecosystem.

Learning Outcome 2:

The assignments and projects listed under this learning outcome describe the impact of current behaviors on the environment and of changes resulting from particular public policies.

1. Final Management Plan Assignment: This project looks at an invasive species in Wildwood Park, Tree of Heaven, and gives management practices as to how best reduce the species in the park. Increased human activity to the park has increased the spread of invasive species because of a lack of education about invasive species. This management plan shows how to best manage an invasive species in a public park.
2. Educating a Politician: This assignment is a letter written to a current politician about a major environmental impact happening in this area. I wrote to Delegate Chris Hurst about the Mountain Valley Pipeline and the impacts it is having on Southwest Virginia. This is a major human caused disturbance that is heavily impacting the environment in

Southwest Virginia. It is important that our politicians are educated on environmental issues, so they can make the best political decisions about the environment for their region.

3. OpEd NRV: This assignment is an opinion article about the impacts of construction on a bridge above the New River. Increased population in this area has led to more construction. As a result of increased construction in the area sediment buildup is occurring in the New River which causes less oxygen in the river. A decrease of oxygen negatively impacts the organisms living in the river. The current behavior observed is increased construction to accommodate the growing number of people in this area.
4. Policy Paper-GEOS 241: This paper analyzes public policy and who should be in charge of protecting lands. In the paper, I argued that the power to determine environmental policy should rest in the states hands because there are different environmental impacts, mostly human caused that are happening in different states. What is happening in one state might not be happening in another, therefore the power should rest in the state and not the federal government.
5. Final Draft-BIOL 481-Communicating Science: This assignment analyzed how pharmaceutical drugs make their way into waterways. Most individuals flush the pharmaceutical drugs they no longer need or are expired. This human behavior is negatively impacting streams and other waterways because the pharmaceutical drugs are altering the chemical make-up of the water.

Learning Outcome 3:

The assignments and projects listed under this learning outcome identify and describe cultural, sociological, and/or literary attempts to define, shape, and/or interact with the natural world.

1. Fire Ecology Paper: This paper looks at prescribed fires in wetland ecosystems. This assignment meets the learning outcome by showing a cultural way that humans are shaping the landscape. Prescribed fire has been performed in different societies over the past century. Prescribed fire is important for some ecosystems and the wetland ecosystem is one that is often overlooked but is important for having a prescribed fire performed in.
2. Tree Nomination Letter: This letter was written for the landscaping director at Radford University and meets the learning outcome because planting trees is a way for individuals to interact with the natural world especially in an urban setting. For example, in America trees are planted on college campuses mostly to make the campus look appealing for incoming students.
3. 305(b)/303(d) Report: The 305-b report is a literary way to interact with the natural world. In order to understand the affects humans are having on streams and how to best restore streams a 305-b report is written. This helps individuals to see the impacts pollution and waste are having on the streams and the measures that it would take to improve the stream.
4. Use of Trees for Ornamental Landscaping: This literary review analyzes articles that discuss using ornamental trees in landscaping. Culturally individuals use ornamental

trees for different purposes to interact with the natural world. College campuses use ornamental trees to attract incoming students to the campus. Ornamental trees are beautiful and often showy.

5. Leaves of the Trees Art Exhibit: This assignment showed how people used pieces of art to interact with the natural world. Artists used leaves and trees to design several different works of art. The viewer as well as the artist is able to interact with the natural world by being immersed in different works of art through an art exhibit.
6. Self-Driving Cars-Intro to Environmental Studies: This assignment discusses self-driving cars and the impact that switching to self-driving cars would have on the environment. Self-driving cars are a cultural way that individuals try and interact with the natural world. Some societies are unable to afford or sustain the market for self-driving cars. Introducing self-driving cars would greatly reshape the natural world by reducing harmful pollutants in our environment.

Learning Outcome 4: The assignments and projects listed under this learning outcome show how I am able to explain environmental studies and sustainability.

1. Environmental Sustainability Project: This project studied single use plastic consumption on Radford University's campus and what efforts could be made to reduce single use plastic consumption on campus. This project meets the learning outcome by demonstrating how Radford can become a more sustainable campus. Sustainability is important to our environment because some resources are being rapidly depleted while at the same time it is becoming impossible to get rid of problems we have created such as the buildup of single use plastics. This project analyzed how college students like fast and easy options in dining halls and through the bookstore and what efforts can be made through incentive options to reduce plastic consumption on campus.
2. Dendroclimatology Manuscript-2017: This assignment was one of the first assignments I completed at Radford University. I think it was important to include this assignment to see the growth I have made through my work. It also demonstrates environmental studies by showing how tree ages are recorded and measured. Being able to analyze tree ring data is an important skill to have in environmental studies.
3. Policy Paper 3 Fall 2018: This paper discusses pollution and what methods should be taken to control pollution. Understanding environmental studies helps one analyze the best approach for reducing pollution and which individuals in society should be held responsible for contributing most to pollution.