BIOL220W BIOMES ACTIVITY – Spring 2019
Based on *BiomeViewer: Biodiversity and Human Impacts* (hhmi BioInteractive)

Getting started:

- Click on this link https://imex.psu.edu/experience-catalogue/biol-220w-biomes-activity/ to access the 360˚ video catalogue and biome viewer.

- Alternatively, you can:
  - Login to Canvas and open the **BIOMES module**
  - Click on the link: **Access Biome Viewer and 360˚ video catalogue**

- This will launch a page with an image of the Biome Viewer map at the top, and a list of 360˚ video experiences at the bottom.

- Click on **Launch Biome Viewer** to open the viewer in a separate window.

- **To view any particular biome on the biome viewer:**
  - select and copy the latitude and longitude coordinates for that biome from the 360˚ video experiences list
  - Paste the coordinates into the "Search by Place or Lat.Long" box on the Biome viewer (top right) and click the search icon

- **To view a 360˚ video**:
  - click the "View in Catalogue" link next to the biome name.
  - Scroll down and click on "Watch in Class" then scan the QR code with your smartphone.
  - Allow the video to launch in YouTube on your phone.
  - Place your phone in the 360˚ viewer headset and watch the video.

More tips for using the BiomeViewer app:

- Click and hold the globe to spin it and explore different parts of the world.
- Click and release a spot on the globe to drop a pin there to see a summary of the characteristics of the biome for that location.
- You can also search for locations by name, latitude/longitude, or zip code.
- In the biome summary panel, click on "More" to see a longer description, photos, a larger climate graph, and wildlife data.
- Click on "Compare" to view details on two biomes side by side.
- On the biomes legend, use the arrows at the top to see different layers including anthromes, temperature, precipitation, and terrain.
- Click the gear icon to toggle gridlines and political boundaries on and off.
- Click on the globe icon to switch between a spherical view and a flat projection of Earth.

IN-CLASS ACTIVITY: Work in pairs to discuss and answer the following questions.

Table 1. Characteristics of the major terrestrial biomes.

Biome	Latitude	Temperature Range		Rainfall Range		Total # species (richness)
		Min	Max	Min	Max	
Tropical rainforest						
Tropical dry forest						
Savanna						
Desert						
Mediterranean shrubland						
Temperate grassland						
Temperate deciduous forest						
Temperate coniferous forest						
Boreal forest (Taiga)						
Tundra						

1. Select **FIVE** of the biomes and view the 360˚ video on the catalogue for each biome.

2. Complete the characteristics for each of the five biomes in Table 1 above.

3. Change the view to a flat map and turn on the gridlines.
    - Click on the **Sahara Desert** near the Tropic of Cancer.
    - Click "**Compare**" and select the **tropical rain forest biome in Southeast Asia** at about the same latitude.
    - Then, answer the following questions:

    a. How do rainfall and temperature patterns differ between the biomes?

b. List the species richness for each biome.

Sahara Desert: _____

SE Asia Tropical Forest: _____

c. Think about the difference or similarity in species richness between these two biomes. What could account for this difference or similarity?

4. **Select ONE of the biomes** that you completed in Table 1 for Question 1. Make sure you are still in flat map view. **Change to the Anthrome layer and select the year 2000**.

a. Select the point in your biome with the **highest level of human disturbance**. List the Anthromes and species richness at this location for each of the years listed in the table below.

Biome name: _____

Year	Anthrome	Species richness
1700		
1800		
1900		
2000		

b. Briefly summarize how humans have impacted the environment at this location over time.

HOMEWORK (Biome viewers are available for loan from the library)

1. Complete the rest of Table 1: view the videos and complete the table for the biomes you did not examine during class.

2. Watch the 360˚ videos for:
   a. Alpine regions
   b. Polar ice
   c. Each of the ocean biomes.

3. Copy and paste the latitude and longitude coordinates into the BiomeViewer so that you are familiar with the locations and characteristics of each of the above biomes / regions.