

Summative Assessment

Overview:

As part of your final group project you will explore a suite of climate projection tools from the online Climate Toolbox (available at: <https://climatetoolbox.org/>). The purpose of this assignment is to demonstrate your ability to choose and apply climate modeling tools that might be relevant to a specific location. This could be your hometown, the place you work or study, or another important location vulnerable to climate change.

Note that group work, particularly among interdisciplinary teams, is important for climate change policy because it touches on so many areas of science and policy – therefore the entire group will receive one grade for this report.

Course Learning Objectives:

This assignment aligns with the following two course learning objectives:

- 1) Use simple climate models to project a range of future impacts, such as sea level rise and wildfire risk, at various spatial scales and under variable future greenhouse gas emission scenarios. Construct maps that overlay climate projections with demographic and policy spatial data from online databases.
- 2) Explore and then apply a sample of accessible online resources, including national, state, and local tools for climate change planning and policy development such as Climate Toolbox or the U.S. Climate Toolkit.

The assignment demonstrates success with CLOs 1 and 2 because it asks students to use an online modeling tool on a specific location to identify key climate change risk factors.

Background Materials:

- Watch “Introduction to the Climate Toolbox” at <https://www.youtube.com/watch?v=BwtP37pTSB8> ‘
- Read the Introduction and first section (§A) of the IPCC SPECIAL REPORT: GLOBAL WARMING OF 1.5°C Summary for Policymakers at <https://www.ipcc.ch/sr15/chapter/spm/>

Instructions:

In your lab groups, choose a location that might experience future climate impacts under a 1.5 °C or warmer temperature change. Using *at least two* tools from the Climate Toolbox, explore future climate scenarios for your location. For example, for Corvallis Oregon you might consider the increase in future extreme fire danger days under a low carbon and high carbon scenario and explain how that might affect the community in the short-term and long-term future. Create two graphs or images from these tools that show climate impacts for your location that

might be used in a climate resilience report or infographic for citizens or policymakers in your location. Include a descriptive caption for each image.

Write a report on potential future climate change impacts for that location. You can divide the work among group members, but the entire group will receive a single grade. Report must include the following:

- Introduction identifying the location and explaining the potential climate impacts that might affect that location and the resident population.
- A map of that location from one of the mapping tools we have previously used (EarthGIS, Data Basin) or other mapping tool of your choice that shows both the location and any factors relevant to your climate analysis like proximity to the coast or the WUI.
- Include graphics from the two Climate Toolbox tools that you chose in your report. Write one methods paragraph explaining each image (two total). Include your reasoning for choosing those specific tools and how you might relate these scenarios to adaptation and mitigation strategies for your location.
- An analysis of the location's preparedness for climate change. Do some research and find out whether that location has a climate action plan or is investing in climate resilience. What else should be done to prepare that location for the impacts you presented above?
- Conclusion summarizing your findings and explaining how the chosen location might increase preparedness for the climate impacts you chose.
- At least three citations of climate change literature or reports on your location should be included. You may use whatever format suits your team, but please be consistent.

Grading Rubric:

Elements	Points Possible	Full Credit	Partial Credit	No Credit
Introduction	10 points	Intro gives information on location (TRS, GPS coordinates, name of town or city). Introduces potential climate impacts threatening that location.	Intro has some information on location, but may be incomplete or confusing. Info on climate impacts is lacking.	No intro provided, or very little substantive information on location is given.
Map	5 points	Map shows location and relevant features for your climate risk analysis.	Map shows either location or some key features but not both. Map is difficult to understand.	No map is provided.
2 images/ graphs from Climate Toolbox	10 points per image (20 total)	Image or graph provided with caption.	Image or graph is poorly formatted, missing caption, or only one is provided.	No graphs or images are provided.
Paragraphs explaining each tool	10 points per paragraph (20 total)	Describes tool and results. Has rationale for choosing tool.	Missing either description of tool or rationale behind choosing tool.	No description provided.
Analysis of preparedness for climate change	30 points	Demonstrates research on strategies for chosen location. Discusses adaptation/mitigation. Includes citations.	Demonstrates cursory research on climate strategies for chosen location.	No analysis provided, or analysis is surface level. No citations to literature.
Conclusion	10 points	Summary of climate impacts is included. Conclusion ties back to Climate Toolbox tools and cites to new sources.	Either summary of climate impacts or discussion of tools is missing.	No conclusion provided. No sources cited.
Citations	5 points for all three	Three external citations, in consistent format of student's choice.	Less than three citations, or inconsistent formatting.	No citations provided.
Total	100 points possible			