**GIS 4010/5010 - Final Project**

**ESRI Scientific Story Maps (21 points)**

**Due: December 10th (Friday) by midnight**

**Introduction**

Research Questions that have numerical justifications (i.e. where the answer to a question is supported by numbers, metrics, or statistics) are notoriously difficult to communicate to the general public. Oftentimes, we can improve the message by including summarizing graphics and supporting data. The graphic nature of maps is one reason they are effective communication tools. Further, we can integrate our interactive web maps for use in ESRI Story Maps to more effectively communicate our geospatial research and findings through a website-like format complete with interactive maps and datasets.

For this project, you will select a topic and area of interest (examples below), identify a research question, do basic background research on the topic, perform a spatial analysis to answer the research question, and make an ESRI Story Map to communicate the study.

I look for your writing to be clear, concise, and effective in communicating your messages. Formatting should follow that of a traditional scientific paper (see Formatting section below). **Do not plagiarize content from the internet.** The maps you need to create for this assignment will need to fit well into your story and be well-made. When selecting a topic, make sure that you are able to create at least two maps on the subject (find some spatial data before choosing a topic).

**Requirements**

* A clearly communicated research question, with a clear explanation of how the research question will be evaluated (in the last paragraph of your introduction section)
* Formatting as a traditional scientific paper (see Formatting section below)
* A minimum of **three interactive web maps** integrated from ArcGIS Pro/ArcGIS Online
  + 1. One map should/could be an overview of the study area displaying the spatial extent of the study area and any other high-level spatial data
  + 2. The next map should/could display the data that are significant to your study
  + 3. The final map should/could display the outcome of your spatial analysis
* One non-map graphic explaining the methodology (box and stick aka flowchart) for the data workflow
* One non-map graphic explaining results
* List of Data Sources/References

**Map Standards (for all maps included in the story map)**

* Cleaned legends and layer names
* Interactive, shared to ArcGIS Online and integrated to the story map **(not copy/pasted images)**
* Cartographically appropriate symbologies
* Caption for each map, explaining the map, what it displays, and what is significant

**General Workflow**

1. Brainstorming and Planning your story map
   1. Planning Sheet and Feedback (**due Nov 15th**)
   2. Plan and document your workflow/analysis
   3. Develop the “script” for the story map
2. Conduct your workflow/analysis
   1. Diagram as a flowchart
3. Make maps and develop into your report
   1. Make map in ArcGIS Pro, share to ArcGIS Online, insert interactive map into Story Map

**Formatting**

You are required to have the following sections in your story map

* **Introduction**
  + Description of topic to a broad audience, introduction to high level background information and explanation of research question and how author will answer the question (i.e. what metrics) (~3 paragraphs)
* **Study Area/Topic**
  + Description of the study area/topic and any contained important features known to be significant to the study (~2 paragraphs)
* **Data and Methods**
  + Description of featured dataset(s) and where they were acquired
  + Description of workflow and methods used in the study
    - Incorporate graphic flow chart in this section, and caption and integrate into text
* **Results**
  + Description of results from the study (however long is required)
  + Not just maps! Include graphs and graphics that help support the answers to your research question.
* **Conclusions**
  + Major conclusions (bullet points or ~1 paragraph) and how they all pertain to answering your research question

**To start your story map:** [**https://storymaps.arcgis.com/**](https://storymaps.arcgis.com/)

**Turn in:**

1. Your story map “script” in a word document
2. A link to your Story Map
3. **GRAD STUDENTS ONLY** – December 9th
   * **Give a 5-7 minute presentation of your story map in class on December 9th**

**NOTE:** If your maps and Story Map aren’t published and sharing is set to “Public” I will not be able to view or grade them

**Grading Criteria (21 points total):**

* Final Project Planning Sheet (2 points:***Due 11-19-21****)*
* Story Map Content (15 pts total)
  + Introduction (2 pts)
  + Study Area (2 pts)
  + GIS data sources, geoprocessing steps, analysis, graphic, and explanation (4 pts)
  + Results, graphic, and explanation (3 pts)
  + Conclusions (2 pts)
  + Data Source/References (2 pt)
* Map Quality (4 pts)
  + Cleaned legends, cartographically acceptable symbologies, appropriate zoom extents, captions (for all maps)

**Possible Topics (Please email me with the topic you choose. If you want to do something that isn’t on the list, that’s great! Just email me first)**

* National Parks (choose one)
* Rivers (choose one)
* Man-made wonders of the world
* Tectonics/mountains
* Earthquakes
* Volcanoes
* Cities (pick one or a few)
* States (pick one)
* Wars
* Natural Disasters
* Fossil sites
* Human rights movements
* Disease outbreaks (No COVID-19)
* Modes of transportation
* Types of trees
* Agriculture, Industry
* Gas and Oil
* Sports/sports teams
* Music (pick a band, genre, instrument, era)
* History
* The Olympics (pick one)
* Mining
* Exploration
* Electric Vehicles/EV Charging
* Location-Allocation Analyses

**Good Example Story Maps** (I do not vouch for the correctness of any analysis/geoprocessing, nor the text included, these are simply nicely made story maps.

Electric Vehicles

<https://storymaps.arcgis.com/stories/1a7c93ee6a6149a6a9588ba3b278b6d4>

Wildebeest Conservation

<https://storymaps.arcgis.com/stories/ea110d5fe0ac4a348c899fc5ef4e6394>

Rest Areas and Automobile Accidents

<https://storymaps.arcgis.com/stories/11e42fb8ffdf4f31bc581924b779db71>

Premature Births and Race in Missouri

<https://storymaps.arcgis.com/stories/fc01288d37a540d790f422c95025c5e7>