**Geographic Information Science Exercise 7**

**Raster Data Management**

These questions will require you to use the skills and information you learned in chapter 6, tutorial 7 and the associated lectures.

This exercise will further your familiarity with raster data ArcGIS.

Items to keep in mind:

1. Create a new project before beginning the exercise.
2. General location of data files will be provided (see below). You will have to determine exactly which file to use, but the folders you should be working with are identified.
3. Any questions requiring the acquisition of data online will be your responsibility to find the data and download it.
4. Any new tasks required will be described. Otherwise, the tools and techniques required to answer the questions will have been introduced in the tutorials for this lab and any prior labs.

**\*\*\*NOTE:** Whenever working with projecting GIS data **ALWAYS** make a copy of the file you are projecting (in case you make a mistake and have to redo the process)

To answer the questions, you will need to use the data in the following folders:

**Online data**

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**Step 1:** Choose a national park, other than Crater Lake.

**Step 2:** Create a new project in your *gisclass* folder (Or whatever folder you have your GIS data stored within). Name it for the park (e.g., Denali\_NP).

**Step 3:** Select an appropriate coordinate system for the park. Open a new map and set the coordinate system.

**Step 4:** Find at least three (3) vector data sets at a suitable scale for the park. Using any source of data other than the mgisdata folder. Project all three data sets and clip to the extent of the park border.

**Step 5:** Find at least three (3) raster data sets at a suitable scale for the park. Use any source of data other than the mgisdata folder. Clip them all to the park border.

1. If multiple tiles (images) of a raster are required be sure to mosaic them together.
2. Project the raster data sets to the same coordinate system as the map.

**Step 6:** Find at least one (1) map image (image that is not GRID data) of the park and georeference it. Record the RMS error.

**Step 7:** Create a finished map of the park with all of the vector layers and at least one of the raster layers visible. All layers should be appropriately labeled, symbolized and limited to the extent of the park. Follow all map best practices and include all standard features.

* Title
* Legend
* Scale bar
* Locator map
* Source info
* North arrow

**Step 8:** Export map to a PDF and submit to Canvas.

**Deliverables**:

* PDF of finished map
* Screen captures (insert into Word doc. Or PDF)
  + **Map display** for each raster layer NOT included in the finished map. Be sure to include the contents pane with the raster symbology visible.
  + **Map display** for each georeferenced layer. Just show the georeferenced image and the park boundary. Include a screen capture of the:
    - Control Points table
    - Transformation parameters display.
  + **Catalog pane** showing all datasets in the project database.
  + **Layers folder** in the map properties (as in Fig. 5.20) showing coordinate systems for all feature classes (should all be the same)
  + **Metadata** showing the updated citations, description, and thumbnail.