G492 GIS Applications in Earth Science
Map Projection Exercises

Step 1. Download Class Exercise Data From Website and Save to Your Local Drive (H:/student folder)

A) go to web site, look under the Lab Data Section - Map Projection Exercise

i) sequentially click on the monmouth quad geology, roads, vegetation, and DRG *.zip files

ii) save them to your network H:/ student folder

iii) Use WinZip to Extract the Compressed Files

a) option 1 - use my computer - H:/ folder - click on *.zip file to extract

a) option 2 - use WinZip program (from desktop)
File- Open Archive - Extract - Point to your H:/ folder

NOTE: All of these map themes of from the Monmouth 7.5' Quadrangle.

Step 2. Activate ArcView Software

A) On the View desktop, add the following "feature data source" shape files: mongeo.shp, roads.shp, stateveg.shp

B) 1 by 1, examine each theme, checking them on / off, zooming to the active theme

C) Check all themes on the table of contents, zoom to full extents.

QUESTION: Why don't the themes overlay one another? Why is the full extend map view so screwy?

D) Remove / delete all of the above themes from the table of contents.

Step 3. add the following "image data source" file: monmouth.tif; add the following "feature data source" mongeo.shp (monmouth geology)

A) Check both themes in the table of contents. Explore the data in both themes by zooming, overlaying, inquiring.

QUESTIONS: What type of data is associated with the mongeo.shp map theme?

Do both of these themes overlay one another properly in geospace?

B) Now try adding the other vegetation and roads themes, do they properly line up in geospace?

What is the problem with this set of data?

Step 4. Your goal is to reproject the roads.shp and stateveg.shp files into the projection of the mongeo.shp and monmouth.tif themes.

A) Use "my computer" and click on the following text files to examine the metadata for these map themes: road_meta.txt, mongeo_meta.txt, and stateveg_meta.txt.

Question: list and the discuss the map projections used for each of the map themes.

B) Using your web browser, go to *www.wou.edu/esri*

go down to the Oregon Map Projection Criteria section and read the "Tutorial on Re-Projecting from UTM Zone 10N to Oregon Lambert Using ArcView Projection Utility"

Using the map projection criteria from the metadata, and from your "map projection" class notes, reproject the road.shp and stateveg.shp files into the same projection as the mongeo.shp and monmouth.tif files.

C) You are done with this exercise when you get all 4 map themes (roads, geology, state vegetation, and the monmouth quad DRG) to overlay perfectly in the UTM Zone10N projection

Final Chore: Using your layout function, map a nice looking map of your 4 layers (all lined up together), make them look nice with north arrow, scale, legend; print them out with your name on it (you can produce up to several prints)