FE 257. GIS and Forest Engineering Applications

Week 10

Final Project

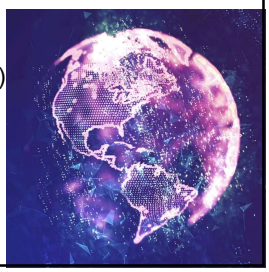
- Written report due on Friday by 5 PM
  - Drop off in Snell Hall 210A
- Result should include a spatial summary or comparison of some natural resource area

This week

- Alternatives to ArcGIS
- Final review

ArcGIS Pro

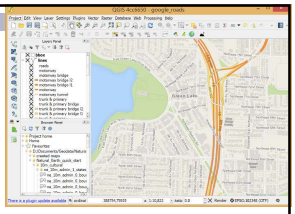
- How other GIS programs measure themselves
- $3,800 / year
  - (Spatial Analyst is extra)
- Windows
  - Mac (Bootcamp)



Alternatives to ArcGIS

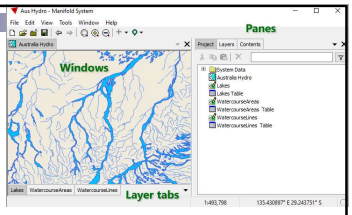
- Two cloud-based examples were shown in class
- Google Earth Engine (Matt Gregory)
  - Free to non-commercial users
  - Python or Java Script
- Data Basin (Dr. Jim Strittholt)
  - Free to all users
  - Menu driven interface

QGIS



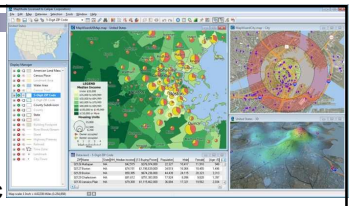
- Open source
- Multiple OS
- https://www.qgis.org/en/site/about/index.html
- https://www.youtube.com/watch?v=otGR4cHw9iU

Manifold GIS



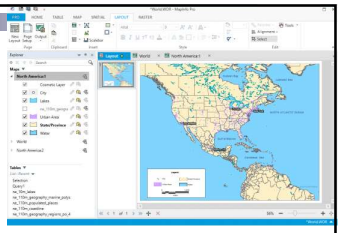
- ~$500
- Windows
- http://www.manifold.net/
- https://www.youtube.com/watch?v=Mc7Elc63smo

Maptitude



- ~$695
- Windows & Mac
- https://www.caliper.com/maptitude/mappingsoftware.htm
- https://comparisons.financesonline.com/arcgis-vs-maptitude

MapInfo



- $2420 Premium
  - 3 years
- $3240 Premium
  - Perpetual license
- Windows
- https://www.pitneybowes.com/us/location-intelligence/geographic-information-systems/mapinfo-pro.html

Google Earth Pro

- Free to registered users (was once a commercial product)
- Cloud based
- Analysis is limited
  - Coordinates, lengths, areas
- Wonderfully fast, very easy to use
  - Popular for sharing basic data

Final review

- Bring #2 or soft lead pencil for scantron
- Multiplication / division
  - No phone calcs

Processing commands

- Clip
- Erase
- Buffering
- Combine / dissolve
- Merging
- Overlays
- Update
- Eliminate

Thanks for taking the course…

- Covered a lot of ground
- Hopefully, you will hang on to what you learned
  - You'll need to practice
  - Your lab notes should be helpful for future GIS work

FE 257 Learning Objectives

- An understanding of GIS fundamentals and theory and an ability to apply these concepts
  - Concepts and GIS capabilities (Entire course)
  - Your final project
- The ability to create thematic maps
  - Watershed areas (Lab 2)
  - Nests, streams, geology in Lower Siletz (Lab 4)
  - McDonald Forest (Lab 7)
  - Viewshed (Lab 8)
  - Your final project report (two maps minimum)
  - Lab final

FE 257 Learning Objectives

- Familiarity with advanced GIS operations and the ability to use these techniques
  - Overlay and proximity techniques
    - Removing watersheds or other areas/features from analysis (clipping) (Lab 3 and others)
    - Land uses and stream buffers (identity, buffer) (Lab 4)
    - Timber volumes (erase, intersect, buffer) (Lab 5)
  - Table joins
    - Land use stream buffers (Lab 3)
    - Stream buffers (Lab 5)
  - Working with raster data (Labs 5, 7, and 8)

FE 257 Learning Objectives

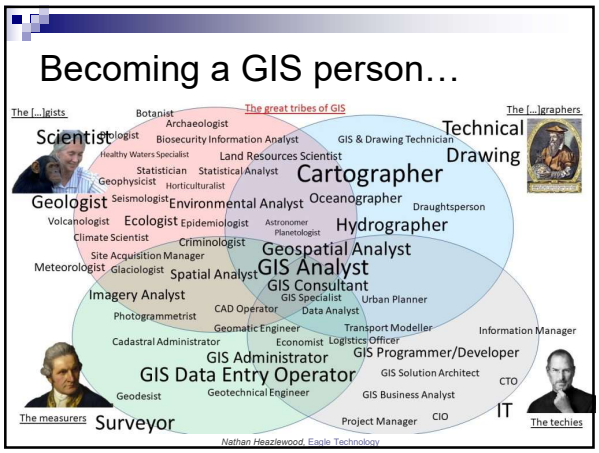
- The ability to work with data of different structures and to use these data to solve problems
  - Raster and vector data
    - Updating stand volumes (Orthophoto) (Lab 5)
    - Working with elevation data (Spatial Analyst) (Lab7)
      - Creating contour lines, shaded relief, and slope themes
      - Calculating stand elevations, and road and stream gradient
    - Viewshed and watershed creation (Lab 8)
- The ability to import data of different cartographic projections and to use these data to solve problems
  - Projecting data (Lab 6)
    - Convert State Plane to Oregon Lambert

FE 257 Learning Objectives

- The ability to communicate with others in writing and orally regarding GIS applications
  - I've asked you questions in lab and exams throughout the term
    - GIS
    - Raster, vector
    - GPS
    - Overlay and proximity operations
    - Projection components
    - Sources of errors in GIS data
    - Types of raster or image data

FE 257 Learning Objectives

- The ability to design and successfully complete a spatial analysis
  - Project description (week 4)
  - Final report


Becoming a GIS person…
The […]gists
The great tribes of GIS
The […]graphers
Botanist
Archaeologist
Scientist
Biosecurity Information Analyst
GIS & Drawing Technician
Technical Drawing
Land Resources Scientist
Statistician
Statistical Analyst
Cartographer
Geophysicist
Horticulturalist
Geologist
Seismologist
Environmental Analyst
Oceanographer
Draughtsperson
Volcanologist
Ecologist
Epidemiologist
Astronomer
Planetologist
Hydrographer
Climate Scientist
Criminologist
Geospatial Analyst
Site Acquisition Manager
Meteorologist
Glaciologist
Spatial Analyst
GIS Analyst
GIS Consultant
Imagery Analyst
GIS Specialist
Urban Planner
Photogrammetrist
CAD Operator
Data Analyst
Geomatic Engineer
Transport Modeller
Information Manager
Cadastral Administrator
Economist
Logistics Officer
GIS Programmer/Developer
GIS Administrator
GIS Data Entry Operator
GIS Solution Architect
CTO
Geodesist
Geotechnical Engineer
GIS Business Analyst
The measurers
Surveyor
Project Manager
CIO
IT
The techies
Nathan Heazlewood, Eagle Technology