Outline

• Course Requirements
• Access Account Form / Survey Course
• Course Website
  – Syllabus
  – Calendar
  – Labs / Lectures
  – News
• Introduction to GIS
Course Requirements

• Prerequisites:
  – Geog 121
  – CompSci 101 (or equivalent skills)
Course Text

• ArcView GIS/Avenue Developer’s Guide
Course Web Site

- Course Syllabus
- Course Calendar
- Labs
- Lecture Notes
- News
Syllabus

• Classes and Labs
  – **Classes:**
    • Tuesdays and Thursdays 1:25-2:15pm in 215 Thomas Building
  – **Labs:**
    • Section 1: Monday 1:25-2:15pm in 123 Walker Building
    • Section 2: Monday 2:30-3:20pm in 123 Walker Building
Syllabus

• Office Hours
  – Dan:
    • Tuesday and Thursday 2:30-3:30 pm in 219c or 123 Walker Building
  – Christy:
    • Mon 10:00-11:00 am, Wed 2:30-3:30 pm in 107 or 123 Walker Building
Syllabus

• Attendance:
  – You are not graded on attendance, and I don’t require you to be here. However, if your grade is on the edge and you have been here regularly, I would be inclined to bump the grade up. If you haven’t been in class, the grade will stay lower. I will not bump you down for not having been in class.
Syllabus

• Graded Work:
  – 9 Lab Assignments (total of 150 Pts)
  – 2 Cumulative Tests (90, 110 pts)
  – Seminar Participation (50 pts)
  – Final Project (100 pts)
    • Requirement Study (15 pts)
    • Prototype (15 pts)
    • Documentation (15 pts)
    • Fully functional product (40 pts)
    • Presentation (15 pts)

• Requirement Study (15 pts)
• Prototype (15 pts)
• Documentation (15 pts)
• Fully functional product (40 pts)
• Presentation (15 pts)
Syllabus

• Two Seminars:
  – You will be assigned an article to read. The article will be in the computer lab (123 Walker), and will probably also be available on the web. I expect you to have read the article, and bring a copy of it to class with notes about topics you would like to discuss.
Syllabus

• Final Project
  – Teams of 2-3 individuals
  – You will choose a problem to solve. Conduct a requirement study, develop a prototype, implement a fully-functional solution, write documentation, and present your final product to the class.
Geographic Information System

• “Integrated computer tools for handling, processing, and analysing geographic data…” (Johnston et. al 2000)

• A GIS is comprised of four components: Computer Hardware, Computer Software, Data, and Staff.

• ArcView is a GIS software package
ArcView Capabilities

• Working with Tabular Data
• Working with Geographic Data
  – Vector – Overlay functions
  – Networks – Address matching, Routing, Flow
  – Raster – DEMs, Images, surface analysis
• Visual Representation
Geographic Data

• Vector
  – Stores geometric descriptions of three types of elements:
    • Point – Stored as an X, Y pair
    • Line – Stored as a directional series of X, Y pairs with a beginning and an end
    • Polygon – Stored as a directional series of X, Y pairs that closes
Geographic Data

• Network
  – Line-based vector data that is formatted so that each line knows what other lines it is connected to, thus forming a network of lines
Geographic Data

• Raster
  – A continuous grid of cells, where each cell carries an attribute value
What would I use a GIS For?

• It is Estimated that up to 90% of data collected has a spatial component, or can be logically linked to one.
• GIS allows you to use that spatial component to help answer questions and solve problems.
• For example…
Example – Idaho Wolf Reintroduction

- Avenue Scripts were used to generate maps tracking the movement of wolves.
Example – Nez Perce Tribal Timber Stand Management

- Timber stands are mapped, and production is monitored with a real-time link to inventory data.
Example – Thurston County Wetland Protection Study

• Wetlands are mapped and then classified according to recent legislation. Effects of the legislation on property owners is evaluated.
Example – NCHS Mortality Mapping

• Mortality data for the United States is mapped. Interactive visual tools allow epidemiologists to find clusters of disease in space and time.
Example – Clustering of Flora

• The spatial location of clusters of different types of plants can help ecologists better understand the ecological niche in which such plants exist.