GEOG 586.01: GIS in Human Geography Laboratory

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GIS in HUMAN GEOGRAPHY
Course Outline and Project Assignments

Texts/References:

Bob Booth and Andy Mitchell, Getting Started with ArcGIS, ESRI, Redlands, California, 2001. (Required Text)


Course Outline:

Introduction

1. Course Objectives and Scope
   A Brief History of GIS and Computer Mapping
   GIS Concepts and Definitions
   Introduction to ArcGIS 8.2

   Project #1—ArcGIS Tutorial

   Basic Concepts for Mapping

2. Geocoding
   Map Projections and Coordinate Systems
   Map Layout

   Project #2—Basic Concepts: Introduction to Map Projections, Coordinate Systems, the Public Land Survey System
Census Maps and Census Data

3. Building Census Base Maps: Geographic Data Translations
   Obtaining and Manipulating Census Data
   Working with Tables–Database Management
   
   **Project #2–Choropleth Mapping: Tributary Areas of Major Metropolises in the U. S.**

4. The Census Summary Tape Files
   The Geography of the Census
   Advanced Geocoding
   
   **Project #3–Mapping Sub-County Census Areas: American Indian Settlement Patterns On and Off Indian Reservations in Montana**

Topology, Address Matching, and Databases

5. Building and Mapping with Address Databases
   Point and Lines in Topological Data Structures
   Address Matching
   
   **Project #4–Address Matching for Mid-Sized Towns in Montana**

Building and Managing Geographic Databases: The Problem of Base Maps

6. Local Base Maps for Vector GIS
   Availability of Base Maps
   Creating Base Map Layers
   Data Translations
   More Map Projection Problems for ArcGIS
   GCDB: the Geographical Coordinate Database
   Elements of Cadastral Mapping
   The Use of Cadastral Mapping in Urban Land Use Planning.
   
   **Project #5–County Plat Maps: Missoula County vs. Butte/Silver Bow County, Montana**

Analytical Procedures

6. Relating point databases to polygons
   Building and Loading Avenue Scripts
Nearest Neighbor Analysis
Point-in-Polygon Analysis

**Project #6–Point-in-Polygon Analysis, Tornado Mobile Research Stations, Kansas and Oklahoma**

7. Building a Base Map from Scratch–Digitizing
   Overlay Analysis
   Polygon Disaggregation
   Buffers and Zones

**Project #7–Developable Sites Near Anchorage, Alaska**

**Software:**

ArcGIS 8.2  EXCEL
SPSS  Cartalinx
Import/Export  AGFshape

**Grading:**

Grades in this class will be based entirely on the projects. Each project will include either a map or a series of maps. Each shall also include a title page and text comprised of description, discussion, analysis, and conclusions. Projects are to be bound in a theme cover. All maps and figures are to conform to thesis format as concerns binding edges, margins, and so forth. Some projects may entail class discussions and presentations. If so, these elements will comprise part of the grade.

There will be no examinations, but the Final Exam Period will be used as a class period. Graduate Students in Geography must register for a traditional grade. Simultaneous registration in Geog 586, Cartography/GIS Laboratory is required of all students.