

GEOG 300 Project Assignment - Fall 2017

Due Date: Friday, December 1st, 2017

- I. The intent of the GEOG 300 project is to initiate and complete a small GIS project related to your program of study or areas of interest. The project fills the last 3 weeks of the term lab periods. It is suggested you divide your time approximately as follows:
- Nov 13 -17: data assembly and design
 - Nov 20 - 24: data analysis
 - Nov 27 - Dec 1: report and final output

II. **Project requirements:**

- The project addresses a clear **research question** or **statement of intent**.
Examples:
 - “Where are the highest suitability sites for mule deer in the Prince George area?” Statement of intent – “This project will identify and map areas suitable for mule deer in the area around Prince George.”
 - “Where can I take my date for a romantic sunset view?” Statement of intent - “This project will identify and map locations with unobstructed views on west-facing slopes”.
- The project is to employ some form of **spatial analysis** (more than just cartography). Typically, these would involve the use of analytical sections of the ArcMap software, for example 3D Analyst (surface analysis of DEM) and/or Spatial Analyst (feature locations / patterns). These should be justified by a rationale not simply performed to complete the assignment.

III. **The first step is to decide on a geographic area and application of interest.**

IV. **Project deliverables:**

At a minimum, project deliverables are to include:

- a) A project summary (2-3 pages) that concisely describes:
 - The project research question and study area chosen
 - Data sources and management
 - The criteria and methods used in the analysis
 - The results and conclusions (including any references used)
 - Include map(s) and table(s) that summarize the results achieved
 - Save your report in a single pdf file with your name as the file name (lastname_firstname_geog3002017_project.pdf)
- b) Color map / associated graphics
These two should be submitted together as **one single PDF document** - both as hardcopy (the colour map can be printed by the help desk on 2nd floor), and also sent to your TA by email as an attachment.
- c) Details: A competent analyst should be able to replicate your methodology based on the description provided in your project summary.
- d) save everything in one file and name it as lastname_firstname_geog3002017_project.pdf

V. **Evaluation:**

The project will be evaluated based on the clarity and completeness of the report, the logical integrity of your analysis, and your map output.

DATA

There are a variety of data available online or via the UNBC GIS Lab. Below we list some common ones, but encourage you to search or ask if you have special interests. Canada federal and BC provincial topographic data are easily downloaded as below.

If you would like to use data from outside BC, then you would use option A below, or also possibly if your area fitted on one 1:50,000 map sheet but several BC 1:20,000 map sheets

For greater detail or a smaller area in BC, you could choose option B (TRIM).

A. Federal data for BC and the rest of Canada

This is downloadable either by 1:50,000 map sheet or drawing an Area of Interest (AOI) from the federal website at: <http://geogratis.ca>

Each sheet contains all the topographic information viewed on the hardcopy map

This includes contours which can be used to generate a DEM (topo to raster)

Note that data are stored in Geographic (Lat/Long) . so they MUST be projected into UTM before you do further data processing.

B: BC TRIM provincial data

The GIS Lab has downloaded and stored all 7027 TRIM 1:20,000 map sheets at:

L:/data/trim/trim1

Note that these TRIM map tiles are downloaded in SAIF format, and need converting using the steps taken in the lab on data formats and conversion with FME software:

<http://gis.unbc.ca/courses/geog300/labs/pdf/conversion.pdf>

The TRIM DEMs are also under: L:/data/trim

These are in UTM projection in ASCII format - by 1:250,000 map sheet (25m pixels)

.. this is converted to raster using the conversion tools -> ASCII to raster

More BC data layers: <http://www.data.gov.bc.ca/dbc/geographic/index.page?>

(click download), launch application, and enter as guest .. note that this site enables download by an AOI (Area of Interest), which avoids having to merge multiple map sheets.

These include under 'configurable products':

- by 1:250,000 map sheet

- by 1:1,000,000 sheet (smaller scale data)

- for the whole of BC (small scale, low detail)

Spatial data paid for by the Province is being consolidated at DataBC, **this is the best place to start** for data within British Columbia:

https://catalogue.data.gov.bc.ca/dataset?download_audience=Public

Other provincial data are available at: <http://canadiangis.com/data.php>

C. Prince George City data

Data for the city can be downloaded but we already have it in /home/data/gisdata/pgcity

PG data corresponds to about 1m resolution, including the high resolution LiDAR DEM

D. Fort Fraser - Prince George Regional District

The website has GIS data download; most of it relates to the rural settlement areas

<http://www.rdffg.bc.ca/Maps/GIS/Data.html>

Report Format (minimum expectations):

Cover page

- Name, course, lab section
- A relevant picture if you have one

Introduction

- Relevant background information
- Study question
- Statement of intent
- Study area description

Methods:

Must provide all information required to replicate the analysis precisely

- Describe the process of data acquisition/sourcing
- Data management steps required (clip, merge, integer, etc.)
- Analysis tools and settings used

Results:

- What results did your analysis produce?
- Display the results on a map and in a table
 - Map has clear purpose (subject stands out)
 - Follow map output principles from lecture: full use of page, clear visual hierarchy, subject obvious, background data relevant to analysis and interpretation.
 - Output table showing complete results of analysis: for example, total area of habitat in each forest cover class.

Discussion:

- What is the answer to your study question?
- What are the limitations to this answer?
 - e.g. data quality, lack of data, reality involves variables not considered, etc.

Marks will be based on the clarity and completeness of each section and the logical coherence between the sections (e.g. are the analyses suitable to the question, and does the discussion follow from the statement of intent?). Consideration will be given to the complexity of the subject and analysis, meaning that if you attempt something complex and can't fully answer the question, you won't lose marks if you clearly explain the limitations of the work.