

Geog 487

Guidelines on selecting and conducting your GIS project

Project Criteria

Your individual project will need to meet the following criteria:

1. You will need to conduct an actual spatial analysis for a topic of your choice. That is, you will need to go beyond just making maps. You will need to apply one or more of the analytical techniques that we have covered in either Geog 387 or in this class. For example, you may develop a cartographic model where you try to predict results for different possible future scenarios; or, you may try to find the relationships between two or more variables; or, you may try to understand the processes at work behind certain spatial patterns. The question or questions you ask need to be answerable through spatial analysis of GIS data. You are welcome to work with either raster or vector data, or both.
2. For your proposal, you will need to conceptualize your project in terms of a flowchart showing input, intermediate and final layers, and the associated GIS operations or functions needed to derive your layers. You will also include in your proposal any assumptions, equations (theoretical or empirical), and simplifications you are doing to simulate reality.
3. You will need to write a final report on your project and give a presentation. Your presentation will be in the form of a website and/or a PowerPoint presentation.

You will probably need to do some background research as you select your topic. This can be done either through web searches or by searching online databases of journal articles. As you try to decide on a project, it may be helpful to ask these questions: Have the questions that you are investigating already been answered by somebody else? Can you ask those same questions, but at a different location or at a different scale? At what spatial scale do you want to work? What data are readily accessible that may help you answer your questions?

Once you find data related to your topic, your questions or spatial scope of your project may change. That is fine. Asking the right questions is an iterative process, largely driven by refinement of questions that can be answered with spatial analysis, data availability and time limitations.

Project Grading

Your project and its various milestones will be graded as follows:

Milestone #1: Project proposal, 3%

Milestone #2: Project proposal (revised), 0%

Milestone #3: Project progress report and preliminary results, 2%

Milestone #4: Class presentation and website/PowerPoint, 10%

Final project report 30%

Total 45%

Structure of Final Project Report

1. Project title

2. Abstract.

One short summary paragraph to describe the outcome of the project (max. 300 words)

- what were the objectives of the study
- how the study was done
- what results were obtained
- the significance of the results

3. Introduction

Problem statement and objectives

- what is the general topic that your research will address
- what are you going to do?
- why is your study of interest?
- why are you doing it with GIS?
- what are you hoping to find?

Reference to related work

- are there similar projects?
- what are the fundamental approaches, theories etc.?
- discusses the results and conclusions of previous studies

4. Methods

Study area

- where was the study area?
- why was it chosen?

Data collection, database design/management

- what data did you use (format, data models, metadata)?
- where did the data come from?

- when were the data acquired?
- how did you get it into the GIS or other software?
- what pre-processing of the data had to be done? (e.g., projection transformation)
- problems you encountered, alternatives that you tried?

Implementation, hardware/software

- what computer hardware/software environment did you use? (e.g., GPS)
- why did you choose this particular software/hardware?

GIS analysis/operations performed

- what GIS functions did you apply?
- why did you apply them?

8. Results

- what is the outcome of your analyses?
- present the data results, but do not interpret these data
- include maps, tables, graphs, etc. in this section

9. Discussion

- interpret results in light of other published results, by adding additional information from sources cited in the Introduction section, as well as by introducing new sources or concepts
- the discussion should relate back to the objectives and questions raised in the Introduction section
- what were the problems you encountered?
- explain deviations from previously published results, etc.
- suggest future directions for research, new methods, etc.

9. Conclusions

- summarize problem, findings in a short paragraph
- what would be left to do, if not finished, what other approaches would be possible?

10. References

- Cite literature from traditional library resources such as journal articles, books etc.
- No more than 2 WWW References are allowed.