# Applied Project

Start Assignment

**Due** Dec 11 by 8pm **Points** 45 **Submitting** a file upload

**Applied Project**

CP6542 Transport and GIS, Fall 2023

(account for 45% of your final grade for this class)

The applied project is meant to be a research topic in transportation planning & geospatial analytics or related fields where you propose a question and develop a complete solution to your question using a model of your choice. The purpose of this assignment is to integrate the modeling techniques you learned from this class to construct a spatially-based network model to solve the identified problem. This can be a totally fictitious problem for a fictitious client, or a real problem for a real client. It is totally up to you!

On **October 13th**, you (or your group) will present 1) the topic of your project, 2) problem statement, 3) project objectives, 4) proposed plan, 5) datasets collected, 6) additional information (for example preliminary analysis results) to the class to receive feedback. You will not be graded for this presentation.

On **November 27th**, **December 1st**, or **December 4th**, you (or your group) will present the project to the entire class. The presentation should include your project objectives, the spatial or mathematical model that you built, analysis results, and findings. This will account for 15% of your final grade.

You (or your group) will submit a final project paper before **8 p.m. December 11th, 2023**. The final project paper will account for 40% of your final grade.

**Please upload your project presentations (mid-semester check-in + final presentation) and your final paper all in PDF format to Canvas.**

# Guidelines for the final project paper

Please limit your final project paper submission to 7 pages of text, excluding maps, tables, figures, and references. Submit in .pdf format with 1.5 spacing.
Do not forget to include:

- your project title,
- a clear statement of your research problem
- where your project is on planet Earth (include a map),
- provide and describe your conceptual vision (model) leading to a solution

Research Support Data Processing & Inclusion

- where did you obtain your data? (cite the data source)
- how accurate is your data and are all the variables at the same scale?
- what spatial data models are your data in?
- what kind of preprocessing of the data did you have to perform to get it ready for your analysis?

(you should include a flow chart showing the steps you took to preprocess your data in order to
get it into the form you need for your analysis)

Your proposed Solution & Methods

- discuss the models used in your research study. (feel free to include figures to help explain your use of them in the study)
- bonus points will be assigned if you successfully integrate multiple methods into the project.

Research Results, Discussion & Conclusion

- Include appropriate graphs and tables, results of each of your analysis steps, and conclusions.
- Discuss the merits and long-term effect that your solution might likely have in your
overall research.
- Include a section on where the uncertainty and error occurs in your study.

## Things to remember when writing your final report

• Support all statements either by reasoning from evidence already presented (with logical steps clearly indicated), or by citing previously published work.
• Do not use vague words and phrases. Make clear statements. If there is uncertainty, clearly state the nature of the uncertainty. Do not try to hide it with vague words.
• *“The most valuable of talents is never using two words when one will do”*, (Thomas Jefferson). Do not include unnecessary material in your paper. Include only material essential to your argument. Avoid exaggerated and strong (but imprecise) words. It is much more powerful to have clear data and present them in an understated way. Using non--scientific words (e.g. "drastic impact") usually detracts from the strength of your message.
• Avoid acronyms whenever possible. These are the plague of boring government documents and consulting reports, which are often deliberately written to be so opaque as to be unreadable and difficult to criticize. Use acronyms only when commonly used, such as GIS, DEM, DSM (make sure you spell out the acronym the first time you use it).
• Consider only using an acronym for a lengthy place name, technique, etc. that you must refer to time and time again in your paper. When you must refer repeatedly to such a lengthy name, try first to shorten it into a simpler expression. Frequently, you can refer to a document with a lengthy title simply as the "Plan", the "Draft Report", etc.
• Many technical writers use the passive voice, evidently to avoid using the first person singular and to give the paper a more “objective” tone. **Do Not use the passive voice** as it has many drawbacks: It robs the prose of vitality in general because the prose is not active. Because the actor is often not specified, it is unclear who is doing what. In term papers that include a description of a previous study or built project, it can be very confusing what was done by the author and what was done by the previous researchers or project designers if written in the passive voice. **For this paper, use the active voice!**
• If the events took place in the past, use past tense. Likewise, when reporting on what was said in an existing document, if the document is finished, it's past tense. Using present tense for past actions is a way to make the prose more

immediate, but it's less objective. Never say “this study will address...” unless you have not done it yet. Use the **present tense**.

• Beware of misused words and phrases. The word *comprise* properly means include, despite the common usage of constructions such as “the ------ is comprised of”, in which "comprise" inappropriately substitutes for the expression “consists of”. Note that *data* are plural; *datum* is the singular. *Historic* is notable in history (the historic battle of Gettysburg). *Historical* is from the past, from the historical period
(historical evidence).

• Just as geology is the study of the earth and biology is the study of life, *methodology* refers to the study of methods. Unless you have conducted a study of methods, call your methods section what it is: *Methods*.