Principles of GIS
Independent Research Project

The independent research project for this course can be a part of a larger project – for instance, part of your Master's thesis or PhD dissertation work – as long as one (or several) of the questions can be answered using spatial data. Because the goal of this project is to further your own research, you are strongly encouraged to ask a question (or set of questions) that relates directly to the study system you are focusing on (or are interested in focusing on) for your own research. However, this is not a requirement. If you do not currently have a study system – or you cannot think of any possible way in which you can ask a question related to your research that requires using spatial data – you can select whatever study system you would like. That said, in the interest of furthering your research, you are encouraged to discuss your ideas with me and your classmates and hopefully together we can identify a question that relates to your research and uses spatial data.

Example project: What proportion of trees in Central Park are suffering from Dutch elm disease? This disease turns the leaves of elm trees a yellow-ish color and is easily visible using NDVI (which is a powerful tool for evaluating vegetation). To answer this question, one could calculate the percentage of trees in a small area of Central Park that are suffering from Dutch elm, and then extrapolate out for the whole park to get an estimate of the proportion of trees suffering from the disease. Rate of disease spread could also be considered and be potentially mapped.

Project proposal

30% of final grade
Format: 1-2 pages, single-spaced, 12pt font, PDF format

The project proposal must include:

- Research question(s)
- Are these questions a part of a larger set of questions or a larger project or do they stand alone? If they are a part of a larger project or set of question, please explain.
- What are your hypotheses or expected findings?
- What types of analyses will you employ to answer these questions?
- What are the data requirements?
- Where will you obtain the data?
- What possible limitations or obstacles do you believe could impact the feasibility of your project?

Your project proposal must be submitted no later than June 3 by 11:59 pm EST.

You can submit it here: https://forms.gle/GGYZ36SEkqzyVGz1A

Final Project

40% of final grade
Format: 5-7 pages, including maps/images; single-spaced, 12pt font, PDF format

Your final project must include:

- Your research question(s)
- Your *a priori* hypotheses or expected findings
- A complete description of your methods
    - What analyses did you perform and why did you choose those analyses
    - What data did you use and where did you obtain your data
- Detailed results
- If this question was a part of a broader set of questions or your overall Master's or PhD research, how do these results contribute?
- Maps showcasing your results (or other maps that are particularly relevant for what you are trying to explain)
    - Please do not include every single map you made! Just the ones that best showcase your results or substantially aid in explanation/justification.
    - Maps must be publication-quality, meaning that they include a title, legend, North arrow, scale bar, and are visually appealing.

Your final project must be submitted no later than June 23 by 11:59 pm EST.

You can submit it here: https://forms.gle/HTi29EC9qiDwETkt8

Late Policy

Please ensure both your project proposal and final are submitted by the above due dates. If you submit your proposal/final late, you will be deducted 20% each day for which it is late. For example, if you were to submit your final project at 10:00 am EST on June 24, 20% would be deducted from your final project grade. If you were to submit your final project at 5:00 pm EST on June 26, 60% would be deducted from your final project grade (60% x 3 days late).

If you require an extension, you must ask for this extension **before** the due date of the assignment for which you are requesting the extension.