

Coursework Research Project for GGS470/590 Global Assessment

Submission Date: May 3rd, 2023

The aim of this individual project is for each student to undertake a global assessment for a particular topic of interest. The ideal final output is a global map visualizing a key metric.

Each student will need to use single loop processing to analyze all countries. It is recommended three separate codebases are utilized, which include:

1. **Preprocessing** of all spatial data layers and boundaries for each country.
2. **Extraction** of metrics of interest, with results data being written to a suitable format (e.g., csv file).
3. **Visualization** of results to produce a global map of a key metric.

Students are advised to consider this exercise as a piece of work which constitutes a potential job market paper, consequently demonstrating key competences when applying for future positions beyond GMU. Indeed, the most successful students can potentially convert this research into future funded projects.

The key project requirement includes submission of a research paper with a total length of ~2,000 words. Approximately 50% of the final grade is dependent on submission of the associated codebase for code validation.

The paper should be submitted on MyMason BlackBoard (as both a Microsoft word (.docx) and pdf document), and also uploaded to a GitHub repository with the developed code. LaTeX/Markdown documents can also be submitted if you prefer, just make sure to also provide a .pdf file of the final submission.

Each student will need to present to the class:

- Their research question, lit review, method, and codebase-in-progress on April 17th (~10 minutes).
- A final presentation of the completed project on May 1st (~15 minutes).

The paper needs to include:

- A properly written research abstract which summarizes the paper, including the motivation, research question, results, and findings (<250 words).
- An introductory section which provides background information, the motivation for the analysis and a stated research question(s) which the analysis aims to answer (<250 words).
- A comprehensive literature review on your chosen topic summarizing past theoretical and empirical research in this area, with at least 10 peer-reviewed citations (~500 words).
- A high-quality methodology section which details the data sources and processing steps involved in the analysis (~500 words). This must include a box diagram illustrating the sequencing of the processing steps, from input data to results output.
- Fully written-up results of the final extracted data and affiliated map(s) (~250 words).
- A discussion section which critically evaluates the ramifications of the results in relation to the research question(s) specified in the introduction (~250 words). Areas of future research could also be discussed. There must be a subsection on the limitations of the analysis.
- A conclusion section containing a summary of the purpose of the paper, and then the main findings (<250 words).
- A fully documented bibliography which states the citations used in the paper. To reiterate, there needs to be at least 10 citations.

Should a submission not meet any of the key criteria, then this will have a subsequent impact on the overall grade of the final project.

Importantly, any project submitted must adhere to the Mason Honor Code and consist entirely of a student's own work. If using the work of others, ensure a comprehensive citation is provided. To avoid plagiarism, students attempting to work on highly similar topics will be discouraged.