Geographic Information Analysis: Using Spatial Data to Display, Manipulate, and Analyze

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Over the past few decades, the amount and variety of freely available spatial data has increased dramatically, allowing researchers to leverage this information within a Geographic Information System (GIS) to examine and explore problems and research questions that were previously unimaginable. Spatial data can be considered special in that the observations are georeferenced to locations on Earth's surface, and the nature of spatial data requires a special set of tools to display, manipulate, and analyze this information. While GIS software provides these tools, the analyst must also possess the specialized skills required to convert spatial data into useful geographic information. Geographic information analysis takes this idea one step further by integrating geographic information, subject matter expertise, GIS-based analysis, and statistical analysis together within the larger endeavor of conducting scientific research.

Volume 4, Issue 1 of the *Journal of Mason Graduate Research* (JMGR) contains research papers that implement geographic information analysis. They are the culmination of student-initiated research projects conceived and completed in the GGS 653 course, Geographic Information Analysis, during the spring semester of 2016. This course places an emphasis on developing students' abilities to incorporate both GIS and statistical methods (or techniques) into a coherent analysis, with the specific aim of answering a research question or addressing a research problem.

The course also covers other potentially overlooked topics, including how to organize and prepare a research paper for publication, the peer review process, and how to submit a paper

to an academic journal. In GGS 653, students are required to initiate and complete a rigorous, high-quality research project of their own choosing. This is no small task, as it requires students to locate useable spatial data, conduct a literature review, develop a research question, design an appropriate methodological approach, complete an analysis, and draft a manuscript, all within the timeframe of a single semester.

As the instructor of GGS 653, I am extremely pleased with the scope and quality of the papers presented in this volume of JMGR, especially when considering that, outside of the revisions that arose during the peer review process, they were completed as part of the course. The topics examined are quite diverse, spanning health, business, terrorism, and crime. This diversity demonstrates the broad range of inquiry that characterizes geographic research. Yet, despite the range of topics, these papers are tied together in that each presents an excellent example of a high-quality geographic information analysis. Further, as a group, this set of papers highlights how geographic information analysis can be used to better understand the world in which we live.

I commend the authors for following through and completing the publication process, which was not a course requirement for GGS 653 and shows great dedication to their research. I also applaud the JMGR for their commitment to supporting graduate student research at Mason and providing all graduate students with this important opportunity to disseminate their findings.