

# Every GIS Student's Nightmare - Finding a Research Topic



At conferences students ask me to suggest projects for course or capstone projects\*, even after they have completed two or more courses (or years!) studying geospatial technology, science and use. Posts on a variety of GIS forums and discussion areas seek the same kind of help. How can educators and those of us in the field mentor students in this important part of their education?

## Why is Selection so Hard?

Most of the queries I get are from undergraduates and masters students. In most cases, they can explore anything of interest that ties into GIS, geography and spatial analysis, in any area of the world, related to any industry or discipline.

Perhaps that's part of the challenge right there. A GIS project or capstone may be one of the first times in their schooling, or the first time in their study of their major, that some students get to enjoy significant learning freedom. With little experience directing their own learning, they are simply overwhelmed. I'm curious if self-directed learners from a home-schooled or Montessori background, fair better.

## Addressing the Problem

How can educators and students ease the topic selection burden? These suggestions might help:

**Read about GIS for fun:** My suspicion is that most GIS students read little about the field outside of their course requirements. They, I suspect, choose not to flip or scroll through formal and informal publications, blogs, forums, or company marketing materials. Learners should make an attempt to "read for fun" within their field, and educators can encourage this behaviour via blogging or discussion assignments. The guiding principle is simple: learners should only read posts and articles of interest. After a student finds they've read three articles on medical geography, they might take it as a hint that it's an area worth exploring for a project.

**Look for geospatial implications in existing interests:** Some of the best student GIS projects I've seen come directly from a student's interests and concerns. Hikers have used GIS to grade hikes by difficulty based on slopes, changes in elevation and other factors. A student who worked at a food bank attempted to create a better routing solution for the delivery trucks to the different locations. Bird watchers have mapped the best locations for finding particular species. I wrote my master's thesis on the marching band I was in at the time. This academic advice parallels that given to writers of all kinds: start with topics about which you know and care!

**Focus on a favourite geography:** Students have favourite places. Were they always curious about the small town in Ireland where a relative grew up? What was it like then? What are the issues there today? And, of course, everyone is interested in their local geography: What topics in a student's current home town could use some geospatial insight? What non-profit organisation in town could use some help? Answering that last question might prompt both an internship and a final project!

**Explore education:** Students with an interest in education (geography, GIS or another topic) might consider working with a local school. Students might teach GIS skills to educators or students, find datasets of interest, or produce educational materials. Esri has suggested students might be valuable in spreading its educational initiatives in the U.S. and beyond, but any technology can make a difference in a classroom.

**Pick a tech:** Some students are more interested in geospatial technology itself rather than how it's ultimately used. There's still quite a bit of work to be done in considering the technical, social and societal issues around sensors, augmented reality, near real-time delivery of remote sensing data and other technologies that enable GIS.

**Get started now!:** These are just a few strategies to guide students as they address what can be an overwhelming freedom in the

midst or end of their studies. The earlier students explore our vast field, the easier it will be to find questions, challenges and problems to hold their interest for a week, a semester or even a career.

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