

Course Tag Reflection Exemplar
Scientific Inquiry & Research Skills

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GEO 383: Geographic Information Systems

Identify the course learning objectives in the syllabus that are clearly aligned to Scientific Inquiry & Research Skills and respective assignment(s).

Three CLOSs align to the scientific inquiry and research skills competency:

- 1) describe the different operations and analytic functions of GIS and their varied environmental applications
- 2) perform basic operations (including data input, analysis, and display) in GIS and explain their uses and limitations
- 3) use GIS technology and spatial data to research a real-world geographical problem.

The first requires that students get an overview of the different types of spatial analyses within different contexts. The second allows students to practice implementing the research process and explore uses and limitations of spatial analyses. The third, requires that students apply what they have learned to a real-world problem.

Explain the connection between specific assignment(s) and Scientific Inquiry & Research Skills. At least 30% of the course grade must engage students in the selected competency for the course to be tagged.

11 lab reports (55%): each lab allows students to explore spatial concepts and practice GIS skills (data input, analysis, display)
3 open-book exams (25%): written exams require students to review, describe, and contextualize concepts and methods
Term project (20%): students develop a project proposal detailing their research design, data sources, and methods, conduct a final GIS project, and present their findings.
100% of the course relates to this competency.

Describe in detail the instructional strategies faculty use to intentionally teach Scientific Inquiry & Research Skills in the course.

This class incorporates lectures to convey and clarify concepts and principles, think-pair-share exercises to explore ideas and test methods, fun anonymous quizzes to practice research concepts, open-book exams to summarize and explain concepts and methods, guest speaker from library to discuss data sources, guided computer

laboratory exercises with assignments to practice GIS skills, assisted laboratory sessions while students work through data collection and preparation, analysis and presentation tasks for their term projects, student oral and poster presentations, and in-class discussions of research/project ideas.

Describe the feedback tool(s) faculty use to support students' competency development on Scientific Inquiry & Research Skills.

Faculty and TAs provide open-ended written feedback on exams, laboratory assignments, proposals and final projects; verbal feedback after presentations. Grading criteria are provided for all assignments.