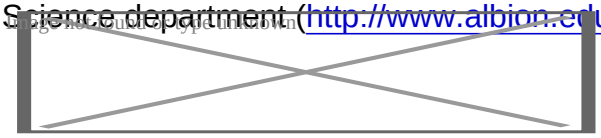
Albion College Geographical Information Systems (GIS)

Description

Albion College Geographical Information Systems (GIS) minor is strongly related to digital technologies and is selected by students across several disciplines and provides a rich foundation for undergraduate research. Geological Science department (http://www.albion.edu/academics/departments/geological-sciences) offers GIS.  The minor is focused on meeting the needs of students who wish to acquire grounding in geographical representation and analysis techniques; and prepare students for positions in industry and government where the application of these techniques combined with knowledge of their own major field is required. It will develop professional competence for positions where competence in GIS, mapping or remote sensing techniques is required. Areas of study include cartography, remote sensing, and geographical information systems. So far some of the projects have included:

Kyle Kubitz '10, was a double major in Geology and Anthropology with a minor in GIS. Kyle used GIS to investigate trade and settlement networks of the Indus Civilization in order to identify new areas of archaeological interest in Gujarat, India.

Allison Robinson '10, completed a senior thesis at Albion "Riparian Change in an Expanding Urban Environment: A Study of Historic Habitat Change along the Truckee River." Allison was a biology major and a GIS minor.

Christina Andries '08, presented her independent research at Albion's Elkin Isaac Student Research Symposium. Christina combined GIS and paleontology in her study, "A New Approach to Dinosaur Ichnology Studies: Using GIS for the Analysis and Interpretation of Theropod Dinosaur Trackways."

Tingley, R., Herman, T., Pulsifer, M., McCurdy, D., & **Stephens, J.** (2010). Intra-Specific Niche Partitioning Obscures the Importance of Fine-Scale Habitat Data in Species Distribution Models. *Biodiversity and Conservation*, 19(9), 2455-2467. Abstract: Geographic information systems (GIS) allow researchers to make cost-effective, spatially explicit predictions of species' distributions across broad geographic areas. However, there has been little research on whether using fine-scale habitat data collected in the field could produce more robust models of species' distributions. Here we used radio-telemetry data collected on a declining species, the North American wood turtle (Glyptemys insculpta), to test whether fine-scale habitat variables were better predictors of occurrence than land-cover and topography variables measured in a GIS.

Catie Castelli ’11 conducted ground surveys and air photo analysis to study recent changes in distribution of dwarf sagebrush (*Artesmia arbuscula*), bristlecone pine (*Pinus longaeva*), and limber pine (*P. flexilis*) at their uppermost limits in the White Mountains, eastern California. Catie’s objective was to assess the impact of climate change on plant distributions.

Lisa Colville ’08 did a senior thesis on GIS analysis of plant distributions in the White Mountains, CA.

Josh Sams ’12, used GIS technology to study the distribution of corals and bryozoans growing on the shells of Devonian brachiopods. His research was supported by the Albion College Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA).

Albion Trees, a web site that provides local photos and information about the street trees of Albion, Michigan. An outgrowth of a summer 2011 research project conducted by Heather Nobert, Albion College ’12, who mapped, identified, measured, and examined the overall condition of Albion city trees found in the strip of land between the sidewalk and street. The project was continued by Luke Martin a rising senior at Albion. In addition to preparing GIS maps, Heather and Luke addressed questions about tree diversity, size, condition, and how they are related to neighborhood age and property values. Their research was supported by Albion College’s Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA).

Zane Havens ’12, had a 2½-month internship with the Bureau of Land Management’s field office in Grand Junction, Colo., where he took measurements of stream discharge and looked for springs in the desert. “A lot of it was doing basic tasks for the hydrologist at the BLM and learning the ropes of using these tools,” said Havens.

References

- http://campus.albion.edu/geologystudentresearch/student-researchers/climate-change/
- http://campus.albion.edu/studentpublications/2010/09/28/jeff-stephens-09/
- http://campus.albion.edu/geologystudentresearch/student-researchers/climate-change-2/
- http://campus.albion.edu/geologystudentresearch/student-researchers/paleontology/
- http://campus.albion.edu/albiontrees/
- http://www.albion.edu/academics/departments/geological-sciences/department-news/4623-havens-fursca-experience-leads-to-internship

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