



## CHARLES E. SCHMIDT COLLEGE OF SCIENCE

### Student Learning Outcomes Assessment

There are two focus areas in B.A. and B.S. in Geosciences: Geography focus and Geology focus. All students with a Geography focus will complete a senior capstone course, GEA 4275 (Human/Environmental Interactions in South Florida). The course is designed to tie together many of the techniques, methods, theories and pertinent literature of the discipline of geography through various readings, assignments and a final project that is delivered in written and other forms.

All students with Geology focus are required to complete GLY 4750 (Field Methods) which includes classroom lectures on Appalachian Geology, a nine day trip to the Southern Appalachians, and two one-day field trips in the local area. This class combines classroom knowledge with field-based observations and published geological data and interpretations, and requires the student to demonstrate proficiency in integrating these sources into a final paper where they will discuss multiple hypotheses interpreting the data they have gathered

**CONTENT KNOWLEDGE (Declarative Knowledge, Technical skills): Graduates of B.A. and B.S. in Geosciences with Geography focus will understand basic concepts and theories in the spatial analysis of human-environmental systems as emphasized in the department such as: physical environment of South Florida, cultural landscape, water resources, coastal hazards, environmental management, urban sprawl and development, and sustainability. Students with Geology focus will demonstrate mastery of broad knowledge of Appalachian geology, details of specific sites within the region, and basic field techniques appropriate to the region.**

All B.A. and B.S. Geosciences students with Geography focus are required to take GEA 4275. The course is designed to tie together many of the techniques, methods, theories and pertinent literature of the discipline of geography through various readings, assignments and a final project that is delivered in written and other forms. The final project in the course will be used to determine student's content knowledge in the discipline, particularly focused on understanding the interrelations of human environmental systems.

Students with Geology focus will demonstrate mastery of basic regional geology and basic field techniques in GLY 4750 via a written examination. The examination will cover the broad regional geology of the area to be visited on the field trip, including the characteristics of the geomorphic regions, knowledge of the orogenic history of the region, and site specific knowledge of localities visited on the Junior Field Camp.

**CRITICAL THINKING (Analytical Skills, Practical Skills): Graduates with Geography focus will use critical thinking to evaluate information, data and problems related to geography by applying basic principles of scientific methodology including data collection and/or field observations that are analyzed using appropriate quantitative or qualitative techniques that illustrate the understanding, description and modeling of a geographic problem. Students with Geology focus will evaluate data gathered in the field and apply scientific methodology and knowledge of basic geologic concepts and processes to the interpretation of the data. They will demonstrate their ability to interpret the geologic record from available evidence and to understand geologic history and potential for mineral exploration.**

All B.A. and B.S. students with Geography focus will complete a senior capstone course, GEA 4275 (Human/Environmental Interactions in South Florida). The course is designed to tie together many of the techniques, methods, theories and pertinent literature of the discipline of geography through various readings, assignments and a final project that is delivered in both written and oral form. Through the final project, students will demonstrate their understanding of the scientific method as applied to geographic research or problem solving. They will use critical thinking to evaluate information, data and problems related to geography by applying basic principles of scientific methodology including data collection and/or field observations that are analyzed using appropriate qualitative, quantitative or spatial modeling techniques that demonstrate the understanding, description and analysis of a geographic problem. The final project in the course will be used to assess student's ability to use critical thinking to evaluate a geographic problem.

Students with Geology focus are required to take GLY 4750. In GLY 4750, students will be required to present a written report in which they will summarize their interpretations of the geologic history of a given site. The report will be evaluated based on the ability of the student to perform data analysis, formulate a working hypothesis and clearly support it with the field data. In addition, students will be evaluated based on their abilities to apply qualitative and quantitative techniques to support their hypotheses and interpretations.

**COMMUNICATION (Written Communication; Other Forms of Communication): Graduates with Geography focus will be able to produce writing that is grammatically correct and well-organized and to deliver clear and well-organized poster presentations. Both written and poster communications should illustrate clear communication skills that also demonstrate successful utilization of graphic tools in geographic information systems, remote sensing and other spatial display techniques. Students with Geology focus will demonstrate the following communication skills: (1) Ability to produce writing that is grammatically correct, well-organized, and clear; (2) Ability to effectively use illustrations to communicate their observations, hypotheses, and interpretations of geologic data; (3) Ability to orally communicate their observations and exchange ideas in a clear and succinct manner.**

All B.A. and B.S. students with Geography focus will complete a senior capstone course, GEA 4275 (Human/Environmental Interactions in South Florida). The course is designed to tie together

many of the techniques, methods, theories and pertinent literature of the discipline of geography through various readings, assignments and a final project. Through the final project, students will demonstrate the ability to communicate clearly and effectively. However, as mapping techniques such as remote sensing, computer cartography and geographic information systems are the main communication tools for research with Geography focus, students must show their ability to communicate using one or more of these techniques. Thus, the final project should utilize graphics such as computer cartography, geographic information systems, and/or remote sensing, where appropriate, to aid in the communication/illustration of their research.

Students with a Geology focus will demonstrate the ability to properly present geologic observations in GLY 4750 by recording both written and illustrative notes in field notebooks. Instructors will evaluate field notebooks based on the completeness and accuracy of the observations as well as on the clarity of writing. Students will also be required to orally summarize, at the field sites, their observations and interpretations of the geologic setting and geologic history of the field sites. Instructors will evaluate oral presentations based on the ability of the student to clearly explain his/her observations, to exchange ideas, and to explain their hypotheses and interpretations.

In addition, all Geosciences students will be required to complete courses designated in the university's Writing Across the Curriculum program to demonstrate general writing skills.