

Department of Geography
College of Social and Behavioral Sciences
University of Northern Iowa

(Adopted 4-09-2008)¹

Undergraduate Curriculum Objectives

The objectives of the Department of Geography's undergraduate (BA) curricula are to provide students with:

I. Geographic Knowledge: Students will be able to understand, analyze, synthesize, and apply core geographic principles, concepts, models, and phenomena

II. Geographic Skills: Students will demonstrate skills and competencies used to develop, analyze, execute, and communicate geographic concepts and analysis

Part 1 – Skills Related to the Liberal Arts Tradition of Geography

Part 2 – Skills Related to the Intellectual Inquiry of Research Design and Execution

Part 3 – Skills Related to Geospatial Sciences and Technologies

III. Geographic Methods: Students will be able to evaluate and apply geographic methods and associated theories used to analyze and advance geographic concepts

The general objectives of the various tracks in the BA degree are the same. However, the focus in the Liberal Arts, Geography Teaching, and Environmental emphases is placed on synthesized knowledge, critical thinking, and methods (I, II, Part 1, and III). In contrast, the focus in the GISc emphasis is placed on content integration and skills development evident in the techniques of GIS. (II, and III).

¹ The full list of student learning outcomes was approved by the faculty of the Department of Geography with a unanimous vote at a faculty meeting on 4-9-08.

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Disaggregate List of Undergraduate Curriculum Student Learning Outcomes

I. Geographic Knowledge: Students will be able to understand, analyze, synthesize, and apply core geographic principles, concepts, models, and phenomena

A. Students will be able to analyze and compare/contrast spatial distributions and patterns, spatial associations and relationships, and the underlying processes that shape these phenomena.

Examples of these principles include:

1. Understanding geographic patterns
 - natural distributions (geomorphic, climatic, biogeographic)
 - economic, social, and cultural distributions
2. Spatial associations, comparing spatial distributions
 - natural/natural, e.g., climate/soil – relationship of cold ocean currents vs. deserts
 - human/human, e.g., ethnicity/religion
 - natural/human, e.g., relationship between climate and crops

B. Students will be able to classify regions and describe how regions are constructed and applied in geographic analysis.

Examples of these principles include:

1. Understanding concepts used to define regions
 - formal/functional/vernacular, boundaries/area/location, internal homogeneity/interaction
2. Knowing and understanding natural regions (e.g. soil, climate, biogeography)
3. Knowing and understanding economic, social, and cultural regions
4. Understanding application of regionalization and boundary demarcation
 - retail trade areas, political redistricting/gerrymandering, cultural vs. political boundaries
 - hazard regions, flood plains, soil regions, climate regions

C. Students will be able to identify patterns and processes of spatial interaction, movement, and diffusion, to explain their significance, and to understand analytical methods.

Examples of these principles include:

1. Understanding spatial interaction
2. Understanding spatial movement (e.g. migration)
3. Understanding spatial diffusion (e.g. innovations, culture, language, technology, disease)
4. Understanding methods used to analyze spatial interaction, movement, and diffusion
 - Human (e.g. gravity model, diffusion curves, discrete choice models)
 - Physical geography (e.g. terrain analysis, diffusion models, field & lab methods)

D. Students will be able to identify examples of human-environmental interaction and assess their past, present, and future impact.

Examples of these principles include:

1. Awareness of the interactions between social and physical phenomena
 - resource availability and constraints
 - human impact on natural processes
 - impact of the environment on economic, social, and cultural systems
 - human perceptions of the environment, environmental cognition (e.g. environmental risk, creation of cultural landscape, sense of place)

E. Students will be able to articulate the significance of scale for the analysis of geographic patterns and processes.

Examples of these principles include:

1. Understanding the influence of the use of different geographic scale of observation and analysis (local to global)
 - on natural distributions and processes
 - on social, cultural, and economic distributions and processes, spatial interaction, and regionalization
2. Understanding scale-based issues related to the analysis of geographic phenomena
 - modifiable areal unit problem
 - ecological fallacy

II. Geographic Skills: Students will demonstrate skills and competencies used to develop, analyze, execute, and communicate geographic concepts and analysis

Part 1 – Skills Related to the Liberal Arts Tradition of Geography

A. Students will be able to demonstrate abilities in critical thinking and intellectual synthesis including multidisciplinary synthesis.

Examples of these principles include:

1. Capacity for critical thinking about geographic issues
2. demonstration of pattern analysis and argumentation
3. Demonstration of effective synthesis and use of knowledge from multiple disciplines

B. Students will be able to demonstrate effective written communication related to geographic knowledge.

Examples of these principles include:

1. demonstrate geographic communication through effective writing
 - demonstrate knowledge of appropriate geographic terminology
 - locate sources of geographic information and data useful in effective communication
 - demonstrate the ability and skill to incorporate appropriate and effective graphics and cartographics into written work and presentations

C. Students will be able to demonstrate effective oral communication skills related to geographic knowledge.

Examples of these principles include:

1. demonstrate geographic communication through effective oral presentation
 - demonstrate knowledge of appropriate geographic terminology
 - locate sources of geographic information and data useful in effective communication
2. demonstrate the ability and skill to incorporate appropriate and effective graphics and cartographics into an oral presentation
 - ability to use PowerPoint or other appropriate medium for visual aid in oral presentations
 - demonstrate ability to create, edit, and apply visual-based geographic data in a presentation

D. Students will be able to display evidence of on-the-job learning, effectively engage in collaborative projects, and exhibit professional judgment, responsibility, and dependability.

Examples of these principles include:

1. Demonstrate a capacity for effective application of geographic knowledge and techniques within professional work settings.
 - ability for on the job learning
 - ability to work with others
 - display professional judgment, dependability, and responsibility
 - ability to produce and an understanding of the importance of quality work and productivity

Part 2 – Skills Related to the Intellectual Inquiry of Research Design and Execution

A. Students will be able to conduct basic research through the development of a research question, select an appropriate research methods, and execute suitable methods of data collection.

Examples of these principles include:

1. Capacity for research design
 - developing a research question
 - articulating a method to answer the research question
2. Capacity for original data capture
 - ability to design and execute surveys
 - ability to gather quantitative or qualitative data in a field setting
 - ability to gather data from laboratory methods typical of our facilities
3. Capacity to access, integrate, and analyze electronic data sources [e.g., USGS, Census]

B. Students will be able to identify, evaluate and integrate scholarly literature.

Examples of these principles include:

1. Capacity for effective use of scholarly literature
 - identify sources of scholarly literature and distinguish authoritative sources from biased or uninformed opinion
 - identify, research, and evaluate discussions and debates in the scholarly literature even when those span multiply sources or years
 - integrate and synthesize material from scholarly literature with other data to make original arguments related to geographic phenomena

C. Students will be able to integrate, manage, process, and analyze spatial and statistical data.

Examples of these principles include:

1. ability to conduct and interpret quantitative analyses appropriate to the discipline including:
 - traditional descriptive statistics for continuous and discrete settings
 - traditional parametric and nonparametric inferential statistics
2. ability to conduct and interpret spatial statistics including:
 - descriptive statistics for geo-coded data
 - inferential statistics and issues for geo-coded data

Part 3 – Skills Related to Geospatial Sciences and Technologies

A. Students will be able to critically evaluate maps, draft quality cartographic products, and visually communicate spatial data.

Examples of these principles include:

1. Develop ability to read, interpret and critique maps of different styles and methods
 - know how to gather information for all typical map types
 - be able to critique map design and accuracy
2. Develop skills in map design and production
 - ability to produce maps with contemporary software
 - know the essential components of a map including scale, projection and symbolism
 - know the basic cartographic methods of data presentation and correctly identify best methods for particular data

B. Students will be able to demonstrate abilities in geospatial technologies and apply those technologies to geographic analyses.

Examples of these principles include:

1. Be able to use spatial data and explain its structure
 - projections and coordinate systems
 - perform spatial and attribute queries
2. Creation or acquisition of spatial data and management of spatial data
 - digitization for analog sources
 - GPS, total station, or other original data survey
 - Airborne and satellite images and data
 - locate and evaluate existing data
 - data base management systems
3. Capacity for spatial data analysis within a GISc environment
 - ability to construct basic geographic models
 - ability to apply various geographic analysis such as trend, pattern, and spatial modeling

III. Geographic Methods: Students will be able to evaluate and apply geographic methods and associated theories used to analyze and advance geographic concepts

A. Students will be able to define major epistemologies and identify and evaluate examples of geographic scholarship.

Examples of these principles include:

1. understand the scientific method, hypothesis testing, the construction of laws, and the identification of empirical generalizations
2. understand the interaction of global and local economic, social, and political forces that affect natural and cultural environments
3. understand interpretive methods to analyze natural and cultural landscapes
4. understand methods related to the analysis of geographic systems

B. Students will be able to define and assess the qualitative and quantitative traditions of the discipline.

Examples of these principles include:

1. Students will be able to outline the importance of spatial data, statistical analysis, and spatial analysis in creating geographic knowledge
 - articulating issues with spatial units of observation
 - describing statistical correlation
 - describing spatial autocorrelation, analysis of distributions
 - create and interpret graphed data
 - create and interpret simple regression models
2. Students will be able to outline the importance of qualitative methods in creating geographic knowledge
 - defining qualitative methods
 - articulating basic principles and methods
 - prescribe meaning and extrapolate patterns from such data

This is a master list of cognitive and behavioral student learning outcomes that are differentially applicable to the various emphases offered in the program and are assessed by a variety of measurement instruments. The GISc emphasis, for example, is applied geography and mandates greater expectations on outcomes in category II part 3. Note also that cognitive outcomes (I & III) are most effectively assessed with results from the standardized exam and that behavioral outcomes (II) are most effectively assessed with results from portfolio evaluations and other project-oriented assessments. Outcome II part 1 D. is assessed by an external internship supervisor, who does not assign the final grade.