Concentration Guidelines for the B.S. in Geography

Although students pursuing a B.S. in Geography are not required to declare a concentration, formal concentrations within the major include Urban, Social, and Economic Geography; Urban and Regional Planning; and GIScience and Technology.

Concentration in Urban, Social, and Economic (USE) Geography (14 hours)
From the local to the global, patterns of urban growth and development connect people to each other, their communities, and their work at every scale of life. Accordingly, this concentration emphasizes how cities grow, how urban populations change, how urban areas interact with one another as well as the implications of these transitions and interactions at the local, regional and international levels. Coursework is tailored to student interest and typically involves foundational courses in urban, social, and economic dynamics; population, migration, and labor studies; poverty, inequality, and housing; transportation and locational analysis; and global and globalizing cities and the impacts of globalization at all geographic scales. Through classroom and research-based activities, students become grounded in the theory and methods of applied geographical analysis in an increasingly interdependent world that: (1) informs stakeholders and the general public; (2) prepares them for careers in the public and private sectors with consultancies, non-profit agencies, international business, think tanks, transnational organizations, while; (3) preparing them for further academic study. Specific coursework for this Concentration in Urban, Social, and Economic Geography is developed in consultation with the student’s advisor.

Concentration in Urban and Regional Planning (14 hours)
Planners solve social and environmental problems in the built environment by translating knowledge into action. Planners work across cultural and disciplinary boundaries to create healthy, just, and sustainable communities. Therefore, the Concentration in Urban and Regional Planning supplies students with a trans-disciplinary perspective on major societal issues. Specific areas of instruction include land use, transportation and infrastructure, social justice, urban design, environmental preservation, and analytical methods. Knowledge, skills, and methods gained from the Concentration in Urban and Regional Planning afford students with opportunities for successful careers in public, private, and non-profit organizations. The concentration also prepares students for graduate studies in planning, geography, policy studies, and associated fields. Students in the Concentration in Urban and Regional Planning should select their courses in consultation with their advisor.

Concentration in GIScience and Technology (13-16 hours)
The GIScience and Technology concentration focuses on the acquisition, representation, analysis, modeling and dissemination of geospatial information with cutting-edge computer technologies. Emphasis is placed on both fundamentals of GIScience concepts, and building expert knowledge in the use of geospatial technologies such as GIS, remote sensing, spatial analysis and modeling, database development and management, programming, Web GIS, and geovisualization. Students benefit from systematic training through technical and applied GIS coursework taught by GIScience faculty. Graduates with a Concentration in GIScience and Technology find themselves well-prepared to start a career in a geographic information technology field. Career opportunities have been growing fast as GIScience in high demand in a wide range of professions, including GIS analysts, GIS developers, cartographers, urban and city planners, location analysts, transportation planners and natural resource specialists. Strong connections between the department and local and state agencies offer excellent opportunities to help students achieve their career goals. Students pursuing the Concentration in GIScience and Technology are urged to select their courses in consultation with their advisor to develop an appropriate program of study in this rapidly evolving field.

Additional Required Coursework for the Concentration in GIScience and Technology
- GEOG 2100  Introduction to Cartographic Design (4)

And select at least two courses from the GIS techniques list and one or more from the GIS Applications list below:

GIS Techniques
- GEOG 4103  Computer Programming for GIS Applications (3)
- GEOG 4180  Web GIS (3)
- GEOG 4150  Spatial Database Development with GPS and GIS (4)
• ESCI 4180 Digital Image Processing in Remote Sensing (4)

GIS Applications
• GEOG 3260 Medical Geography (3)
• GEOG 4131 Environmental Modeling with GIS (4)
• GEOG 4132 GIS Spatial Modeling for Social and Economical Applications (4)
• GEOG 4140 Geographic Information Techniques for Community Planning (4)
• GEOG 4155 Retail Location (3)
• ESCI 4170 Fundamentals of Remote Sensing (4)
• GEOG 4265 Transportation Analysis Methods (3)

Students in the GIScience and Technology Concentration are required to take at least 13 hours of additional GIS-related coursework from the courses listed above and an additional 2 to 5 hours in elective departmental coursework at the 3000 or above level (total 18 hours). Students should work closely with their academic advisors to ensure that their program of study is tailored to their career goals.