Master of Science (M.S.) in Geographic Information Science Plan of Study 2016–2017

The interdisciplinary M.S. in Geographic Information Science (GIScience) is offered by the Center for Sustainability in cooperation with the Department of Sociology and Anthropology and other departments that offer GIScience courses (e.g., Department of Biology). Students are required to develop a plan of study when they begin the program to (1) help them stay on track for graduation and (2) make advising sessions more productive. Included in this document are sample schedules for full- and part-time plans. Please note that these are **samples**. Students should customize their own plans based on the amount of time they are able to dedicate to the program, their finances, and course availability. Students have five years from their initial enrollment date to complete the program before they must obtain an extension.

Required Courses: The M.S. in GIScience is a 30-credit-hour degree program that students can pursue on a full- or part-time basis. Most courses are offered during the evening, and students typically complete the program within two years. Please note that **required courses are offered only once per calendar year,** in either the spring or fall semester (Table 1). Any variation from the core course list must be approved by the faculty advisor, mentor, and the Director of the Center for Sustainability using a course substitution/credit form.

Coursework-only vs. Research Project or Thesis Research: The GIScience program allows students on various career paths to customize the degree based on their academic interests and professional goals. Those already working in a GIScience field who would like to advance their careers outside of academia may complete the degree by taking 30 credit hours of coursework with no requirement of a thesis or other substantial summative research project. Students interested in a specific research topic can take GIS 5970/SOC 5970 – Research Topics to enhance geospatial research skills in a particular area. Students who wish to continue their studies in a doctoral program or pursue a research-oriented career can take 6 hours toward a thesis. The thesis and research project options allow students to display their mastery of a specific topic related to the broader subject of GIScience, and each serves as a summative expression of the student's research and educational experience. Students interested in the research project or thesis options must obtain approval from their mentor and the Director of the Center for Sustainability before registering for GIS 5970/SOC 5970 – Research Topics or GIS 5990/SOC 5990 – Thesis Research.

Table 1: M.S. in GIScience Required Courses

Required course	Schedule
GIS 5010 – Introduction to GIS (3)*	Every fall
GIS 5040 – Introduction to Remote Sensing (3)	Every fall
GIS 5070 – Research Methods (3)	Every fall
GIS 5020 – Intermediate GIS (3)	Every spring
GIS 5060 – Geospatial Methods in Environmental Studies (3)	Every spring
GIS 5080 – Digital Cartography and Geovisualization (3)	Every spring

*Students can earn course credit for GIS 5010 through equivalent coursework, testing, and/or work experience. Those who qualify should ask an advisor to submit a Petition for Graduation Requirement Course Substitution.

Table 2: M.S. in GIScience Credit Hours

Coursework-only option		Research project option		Thesis option	
Required	18 hours	Required	18 hours	Required	18 hours
Electives	12 hours	Electives	9 hours	Electives	6 hours
		Project	3 hours	Thesis	6 hours
Total	**30 hours**	**Total**	**30 hours**	**Total**	**30 hours**

- GIS 5010 (Introduction to GIS) and GIS 5070 (Research Methods) are offered in the Fall.
- The sample plans below assume that a student has had some prior exposure to GIS.
- Students with zero experience with GIS are advised to take GIS 5070 (Research Methods) after taking GIS 5010 (Introduction to GIS). For example, full-time students with zero prior experience should take GIS 5010 in Fall of Year 1 and GIS 5070 in the Fall of Year 2.
- Students with prior experience in GIS may be able to place out of GIS 5010 and are advised to arrange a meeting with one of the GIScience faculty to discuss this issue as relevant.

M.S. in GIScience – Sample Full-Time Plan

Year 1			
Fall		**Spring**	
Course	**Credits**	**Course**	**Credits**
GIS 5010 – Introduction to GIS	3	GIS 5020 – Intermediate GIS	3
GIS 5070 – Research Methods	3	GIS 5060 – Geospatial Methods in Environmental Studies	3
GIS 5040 – Introduction to Remote Sensing	3	GIS 5080 – Digital Cartography and Geovisualization	3
Electives*	6	Electives*	6
Total	**15**	**Total**	**15**

***Electives may be taken in summer, if available.**

M.S. in GIScience – Sample Part-Time Plan

Year 1		Year 2	
Fall 1		**Fall 2**	
Course	**Credits**	**Course**	**Credits**
GIS 5010 – Introduction to GIS	3	GIS 5040 – Introduction to Remote Sensing	3
GIS 5070 – Research Methods	3	Elective	3
Total	**6**	**Total**	**6**
Spring 1		**Spring 2**	
Course	**Credits**	**Course**	**Credits**
GIS 5020 – Intermediate GIS	3	GIS 5060 – Geospatial Methods in Environmental Studies	3
GIS 5080 – Digital Cartography and Geovisualization	3	Elective	3
Total	**6**	**Total**	**6**
Summer 1		**Summer 2**	
Course	**Credits**	**Course**	**Credits**
Elective	3	Elective	3
Total	**15**		**15**

Electives: Below is a list of approved electives for the M.S. in GIScience. Students must submit an ***Elective Approval Form*** to their advisor for review and approve. Students must take 12 hours of elective credit. Students may count GIS 5970 – Research Topics for 3 hours of elective credit and GIS 5990 – Thesis as 6 hours of elective credit with approval. Note that not all electives are offered each semester or every year, and students should check Banner Self-Service for course scheduling and availability.

GIS 5090 – Programming for Remote Sensing/GIS (3)
GIS 5100 – Microwave Remote Sensing: SAR Principles, Data Processing and Applications (3)
GIS 5110 – Interferometric Synthetic Aperture Radar (3)
GIS 5120 – Geographic Information Science, Society and Sustainability (3)
GIS 5970 – Research Topics (3)
GIS 5990 – Thesis Research (6)
UPD 5110 – Spatial Planning Methods (3)
SOC 5640 – Demography: Measuring & Modeling (3)
SOC 5670 – Spatial Demography: Applied Statistics for Spatial Data (3)
SOC 5700 – Applied Spatial Analysis (3)
BIOL 5190 – GIS in Biology (3)

*Students may choose only **one** of the following non-GIScience course as an elective:*

SUS 5010 – Sustainability Foundations (3)
SUS 5020 – Environmental Aspects of Sustainability (3)
SUS 5030 – Sustainability in Society and Cultures (3)
SUS 5040 – Sustainable Business Practices (3)
UPD 5010 – Planning & Development Theory (3)
UPD 5020 – Land Use Planning and Analysis (3)
UPD 5200 – Local Economic Development Policy and Practice (3)
UPD 5220 – Infrastructure and Plan Implementation (3)