EARTH AND ENVIRONMENTAL SCIENCE-GEOGRAPHIC INFORMATION SCIENCE, B.S.

This program will produce essential GIS professionals to serve fast-growing urban communities through partnership and collaboration with local government, agencies, and organizations. The program aims to prepare students with recent information, technology, and a wide range of competencies, including but not limited to critical thinking, problem-solving and quantitative reasoning. Students will be able to understand the concepts and principles of GIS and its real-world applications. Students are expected to analyze and interpret scientific data and assess information integrity quantitatively.

GIS forms the "geospatial backbone" of a family of Spatial Literacy-related competencies (NRC, 2006; Goodchild, 2006) that constitute one of the "Top Ten" fastest-growing disciplines of the 21st century (U.S. Dept. of Labor 2017). GIS is highly inter-and multi-disciplinary, as evidenced by the fact that it is mentioned in IPEDS job designations in both Science and Sociology. Spatial literacy is on the same level as competencies, such as quantitative reasoning and communication.

Code	Title	Credits
Major Core Curriculum		**30**
EESC 252	GIS I: Contemporary Applications of GIS	3
CS 252	Programming for All in Python and Computer Science Principles	3
EESC 350	GIS II: Contemp Analysis w/GIS	3
CS 306	Data Base Design	3
EESC 455	GIS III: Modeling with GIS	3
EESC 325	GIS for the Urban Community	3
EESC 460	GIS IV: Web-Based GIS	3
EESC 465	GIS V: Remote Sensing and Raster GIS	3
EESC 470	GIS VI: Advanced Applications of GIS	3
EESC 451	Guided Study	3
Major Electives		**12-18**
ART 185	Computer Graphics	3
ART 286	Plotting Global Climate Change: Information Graphics for Sciences	3
CS 209	Data Structures	3
CS 302	Programming Languages	3
CS 365	Advanced Java Programming	3
CS 409	Introduction to Data Science	3
ECON 203	Business Statistics	3
or PSYC 230	Statistics for Social Sciences	
EESC 235	Global Climate Change	3
EESC 250	Plunder: The Race for Natural Resources	3
HIST 245	Cities in History	3
HIST 313	Urban America: The City in American History	3
POLI 140		3
SECU 210	Introduction to Intelligence	3
SECU 350	Intelligence Analysis	3
SOCI 230	Cities of Industry: Sociological Perspectives	3
Required Geography Foundation Courses		**9**
HIST 131	Metropolitan New York	3
EESC 121	Mapping the City	3
EESC 226	Earth 360:Integrated Geography	3

Freshman

Semester 1		**Credits**
ENGL 101	English Composition I	4
MATH 112	Intermediate Algebra	3
CS 120	Computers and Information Technology	3
EESC 121	Mapping the City	3
	Credits	**13**
Semester 2		
ENGL 102	English Composition II	4
HIST 131	Metropolitan New York	3
CS 252	Programming for All in Python and Computer Science Principles	3
General Education Tier I Course		3
General Education Tier I Course		3
	Credits	**16**

Sophomore

Semester 1		
MATH 140	Statistics I	3
EESC 252	GIS I: Contemporary Applications of GIS	3
EESC 226	Earth 360:Integrated Geography	3
CS 306	Data Base Design	3
General Education Tier II Course		3
	Credits	**15**
Semester 2		
MATH 175	Enhanced Precalculus	4
EESC 350	GIS II: Contemp Analysis w/GIS	3
General Education Tier II Course		3
General Education Tier II Course		3
General Education Tier II Course		3
	Credits	**16**

Junior

Semester 1		
EESC 325	GIS for the Urban Community	3
EESC 455	GIS III: Modeling with GIS	3
GIS Elective		3
GIS Elective		3
GIS Elective		3
	Credits	**15**
Semester 2		
MATH 192	Calculus and Analytic Geometry I	4
EESC 460	GIS IV: Web-Based GIS	3
GIS Elective		3
GIS Elective (or Minor)		3
GIS Elective (or Minor)		3
	Credits	**16**

Senior		
Semester 1		
EESC 465	GIS V: Remote Sensing and Raster GIS	3
EESC 451	Guided Study	3
GIS Elective (or Minor)		3
GIS Elective (or Minor)		3
GIS Elective (or Minor)		3
	Credits	**15**
Semester 2		
EESC 470	GIS VI: Advanced Applications of GIS	3
GIS Elective (or Minor)		3
GIS Elective (or Minor)		3
GIS Elective (or Minor)		3
Elective		2
	Credits	**14**
	Total Credits	**120**