Geospatial Information Sciences

**GISC 2301** Introduction to Geospatial Information Science (3 semester hours) A broad introduction to geospatial information science, including GIS, remote sensing, GPS, spatial data analysis, cartography, and other topics. (Same as GEOS 2301) (2-2) Y

**GISC 2302** Geodesy and Geospatial Analysis (3 semester hours) Introduction to the basic concepts of geodetic datums (horizontal and vertical), coordinate systems, and map projections. Applications in the Earth Sciences will be discussed to reinforce concepts. (Same as GEOS 2306) (3-0) Y

**GISC 2304** Tools for Spatial Analysis (3 semester hours) An introduction to the primary methods used in geographic analysis. Topics include spatial statistics, cartography, and geographic information systems (GIS). This course is designed to provide a foundation for all other upper level Geography courses. Prerequisite: EPPS 3405 or STAT 1342. (Same as GEOG 3304 and GEOS 3304) (3-0) Y

**GISC 4101** Exploring Geographic Information Systems (1 semester hour) A two day weekend workshop designed to provide GIS neophytes with a basic introduction to GIS spatial analysis theories and software techniques. May not be taken for credit by GISC majors. (1-1) S

**GISC 4317** GeoComputation (3 semester hours) Introduction to fundamental computational skills and their implementation in GIS software development. Topics covered include geoprocessing functions, geospatial modeling, visual programming, scripting and application development. Students are expected to design and implement a project. Prerequisite: (GEOS 2301 or GISC 2301) or (GEOG 3304 or GEOS 3304 or GISC 3304). (3-0) Y

**GISC 4325** Introduction to Remote Sensing (3 semester hours) Topics include principles of remote sensing and sensors, image visualization and statistics, radiometric and geometric correction, enhancement, classification, change detection, and innovative image processing approaches. (Same as GEOS 4325) (3-0) Y

**GISC 4326** Cartography and GeoVisualization (3 semester hours) Examines the theoretical concepts and practical applications of cartographic and geographic visualization. Topics covered include concepts for geographic data representation, symbolization and map design, and methods for geographic visualization and display. 3D visualization, cartographic animation, and web-based mapping may also be included. Lab sessions explore the implementation of cartographic and geographic visualization with industry standard GIS software. Prerequisite: (GEOS 2301 or GISC 2301) or (GEOG 3304 or GEOS 3304 or GISC 3304). (3-0) Y

**GISC 4382** Applied Geographic Information Systems (3 semester hours) Further develops hands-on skills with industry-standard GIS software for application in a wide variety of areas including urban infrastructure management, marketing and location analysis, environmental management, geologic and geophysical analysis and the Economic, Political and Policy Sciences. Prerequisite: (GEOS 2301 or GISC 2301) or equivalent with instructor's consent. (3-0) Y

**GISC 4384** Urban and Environmental GIS (3 semester hours) Application of GIS in solving real world urban and/or environmental problems. Advanced techniques such as geospatial analysis, modeling, simulation and visualization will be covered. State-of-the-art software will be introduced through hands-on laboratory
experiences. Prerequisite: (GEOS 2301 or GISC 2301) or (GEOG 3304 or GISC 3304 or GEOS 3304). May be repeated for credit (6 hours maximum). (3-0) Y

**GISC 4385** Advances in GIS (3 semester hours) This course introduces advances in contemporary geographic information system and sciences. Topics covered may include advanced GIS applications in social and natural environments, algorithms and their implementations in GIS, computational aspects of GIS such as uncertainty and data quality assessment. Prerequisite: (GEOS 2301 or GISC 2301) or (GEOG 3304 or GISC 3304 or GEOS 3304). May be repeated for credit (6 hours maximum). (3-0) Y

**GISC 4v96** Special Topics in Geospatial Information Science (1-3 semester hours) Subject matter will vary from semester to semester. May be repeated for credit (9 hour maximum). ([1-3]-0) R

**GISC 4v97** Independent Study in Geospatial Information Science (1-6 semester hours) Independent study under a faculty member's direction. May be repeated for credit. (6 hours maximum). Instructor consent required. ([1-6]-0) R

**GISC 4v98** Internship (1-6 semester hours) May be repeated for credit up to a total of six semester credit hours. Instructor consent required. This course can only be taken Credit/No Credit. ([1-6]-0) S

**GISC 4v99** Senior Honors in Geospatial Information Science (1-6 semester hours) For students conducting independent research for honors thesis or projects. May be repeated for credit (6 hours maximum). Instructor consent required. ([1-6]-0) S