DEREE COLLEGE SYLLABUS FOR:

GG 3115 GEOGRAPHIC INFORMATION SYSTEMS **3/0/3**

UK LEVEL: 5
UK CREDITS:15

(Updated Fall 2022)

PREREQUISITES:	CS1070 Introduction to Information Systems
CATALOG DESCRIPTION:	An introduction to the field of Geographic Information Systems (GIS), its diversified applications and exploration of basic concepts, principles, approaches and techniques of GIS. Topics include applications of geographic information system; spatial data collection; data accuracy and uncertainty; cartographic principles; data visualization; geographic analysis; legal, economic and ethical issues.
RATIONALE:	Geography matters; students in any discipline could benefit by taking this course. Geographic Information Systems (GIS) allow us to see patterns, relationships and trends in physical, cultural and economic variables in ways that charts, graphs, and tabular datasets cannot. This course provides the framework upon which students will develop basic spatial data management and analysis skills and is designed for those who are new to Geographic Information Systems as a concept. Whether mapping how, when, where or why, utilizing GIS has become a more mainstream practice. GIS is both tool and science and imparts the framework with which geographic data is organized, analyzed and disseminated for environmental science as well as for other areas.
LEARNING OUTCOMES:	As a result of taking this course, the student should be able to: 1. Evaluate and apply the various data analysis techniques. 2. Develop a series of maps using all relevant techniques in support of solving a problem. 3. Demonstrate the ability to interpret geospatial data for environmental or other purposes
METHOD OF TEACHING AND LEARNING:	In congruence with the learning and teaching strategy of the College, the following tools/activities are used: • Lectures, class discussions, and programming problem solving. Laboratory sessions, involving training and practice in map design and development. • Office hours held by the instructor to provide further assistance to students. • Use of the Blackboard site to further support communication, by posting lecture notes, assignment instruction, timely announcements, and online submission of assignments
ASSESSMENT:	**Summative:** Project: 1,500-1,800 words report describing the work done with references and a map output — 100 **Formative:** Take-home "diagnostic" case study — 0 The formative case study aims to prepare students for the examination. The project tests Learning Outcomes 1, 2 and 3.
INDICATIVE READING:	**REQUIRED READING:** • Heywood, I. Cornelius, S. and Carver, S. 2011. *An Introduction to Geographical Information Systems*, 4/e, Prentice Hall

	RECOMMENDED READING: • DeMers, M. N. 2009. *Fundamentals of geographic information systems*, 4/e, Willey • Ormsby, T., Napoleon, E., Burke, R., Bowden, L. Groessl, C. 2011. Getting To Know ArcGIS Desktop, 2/e, ESRI Press
INDICATIVE MATERIAL: *(e.g. audiovisual, digital material, etc.)*	**REQUIRED MATERIAL:** N/A **RECOMMENDED MATERIAL:** N/A
COMMUNICATION REQUIREMENTS:	Daily access to the course's site on the College's Blackboard CMS. Effective presentation skills using proper written and oral English. Communicate and coordinate during development activities.
SOFTWARE REQUIREMENTS:	ArcMap 10.2 MS-Office
WWW RESOURCES:	The Guide to Geographic Information Systems http://www.gis.com ESRI http://www.esri.com Hellenic GIS Society http://www.hellasgi.gr/ US Geological Survey http://egsc.usgs.gov/isb/pubs/gis_poster/ GIS Lounge http://gislounge.com/ GIS Tutorials http://www.gisdevelopment.net/tutorials/ http://www.mapcruzin.com/free-learn-to-map-gis-tutorial-and-shapefile-atlas.htm http://www.spatialhydrology.com/tutorial.html
INDICATIVE CONTENT:	1. What is GIS and how did it develop? Getting to Know ArcGIS 2. Spatial Data and Cartography Displaying Data in ArcGIS 3. Output: The Nature of Data and Making Maps Getting Information About Features 4. Spatial Data Modeling Analyzing Feature Relationships 5. Database Management Analyzing Feature Relationships (cont.) 6. Data Input & Editing Creating & Editing Data 7. Data Quality Issues 8. Data Analysis Presenting Data 9. Analytical Modeling Creating Spatial Data Models 10. Human and Organizational Issues 11. GIS Project Management & Design 12. The Future of GIS