

Office of Academic Affairs
Tarleton State University
April 21, 2009

Master Course Syllabus Outline

Department: Engineering and Physics

Course Prefix/Number: HYDR 311-3

Official Course Title: GIS in Water Resources

I. Catalog Description: An introduction to the geographic information system (GIS) basic concepts and applications in watershed hydrology and water resources. The course provides students hands-on experiences on using GIS to visually analyze hydrologic data. In addition, the course covers the advanced topic of integrating GIS and hydrologic models.

II. Prerequisite: GEOL 105, HYDR 110

III. Expanded Course Description: The course introduces spatial and non-spatial data, coordinate systems, projection, vector and raster data structures. The GIS functions that are commonly used to analyze hydrologic data are introduced through carefully-designed examples. These examples will be selected from the research projects and/or practical studies. In addition, the course teaches students how to use GIS as a tool to prepare inputs for hydrologic models and to visualize/display outputs of these models. ArcGIS[®], a commercial GIS software package developed by ESRI, will be used to support the teaching and learning.

IV. Intended Student Outcomes:

- Understand why GIS is a prerequisite tool for hydrologist and water resources engineers
- Understand the basic concepts and functions of GIS
- Understand how GIS can be used to solve problems of water resources
- Gain the preliminary capability to use GIS to prepare inputs for hydrologic models
- Gain the preliminary capability to use GIS to display and further interpret outputs of hydrologic models

V. Coordinators: Dr. Xixi Wang, P.E.

VI. Academic Honesty:

Cheating, plagiarism (submitting another person's materials or ideas as one's own), or doing work for another person who will receive academic credit are all-impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure of give help during an examination, the unauthorized copying of examinations,

assignments, reports, or term papers, or the presentation of unacknowledged material as if it were the student's own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

VII. Students with Disabilities Policy:

It is the policy of Tarleton State University to comply with the Americans with Disabilities Act (ADA) and other federal, state, and local laws relative to the provision of disability services. Students with disabilities attending Tarleton State University may contact the Office of Disability Services at (254) 968-9478 to request appropriate accommodation. Furthermore, formal accommodation requests cannot be made until the student has been officially admitted to Tarleton State University.