GIS Pollution Modeling and Visualization  
ESCI 5490

Professor: Dr. Kevin K. Nelson  
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Class Time: TBA  
Classroom: TBA  
Office hours: TT 9:00 – 10:00 (& by appt.)

Course Description: This course is an introduction to pollution/hazmat modeling using real time data collection and geographic information systems with emphasis on visualization. Topics include HAZMAT modeling products, field data collection equipment and techniques, data integration into geographical information systems and visualization.

Student Learning Outcomes: Upon successful completion of this course, students will be familiar with current techniques and equipment for documentation and data collection for environmental releases. They will be familiar with tools used to model the movement of and potential harm to the population as well as visualize the current and projected data using geographic information systems.

Format: 1-week, 8-5 with field exercises for data collection and tool training; lecture and computer lab instruction for visualization.

Required Texts: None

Assignments: All assignments will be done in class and include hands-on training in the use of equipment and software for use in the class.

Grading:  
In-class projects 40%  
Field projects 30%  
Participation 10%  
Final Exam 20%

The following grading scale will be used for the final grades:  
A: 100-90%  B: 89.9-80%  C: 79.9-70%  D: 69.9-60%  F: <60%

Attendance: All lectures and field trips are mandatory. University policy will determine the consequences for excessive absences.

General Course Rules: During class you may find that your ideas, opinions and past experiences conflict with others or what is presented during lecture. Please be respectful of these alternative views and help to ensure an engaging and courteous classroom atmosphere. Please refrain from using electronics except for note-taking and field work. If your abuse of electronics becomes a distraction to the learning environment, you may be asked to leave.
Content:

I. Lecture Topics
   a. Introduction
      i. Overview
      ii. Basics and background
   b. Technology
      i. Documentation
      ii. GPS
   c. Software:
      i. Spill Response Products
      ii. Trajectory Modeling Products
      iii. Computerized Spatial Decision Support Systems
      iv. ArcGIS and visualization

II. Field Exercises
   a. Equipment training and proficiency
   b. Mock spill response exercises
   c. Integration of field data in geographic information systems

Academic Integrity/Plagiarism: University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a minimum of an F on the assignment but depending on the situation, may also result in a failing grade (F) in this class or a more severe punishment.

Dropping a Class: I hope that you never find it necessary to drop this class or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 4/10/2015 is the last day to drop a class with an automatic grade of “W” this term.

Grade Appeals: As stated in University Procedure 12.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 12.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disabilities Accommodations: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning
environment that provides for reasonable accommodation of their disabilities. If you believe you have a
disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in
Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the
classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.