COURSE SYLLABUS & OUTLINE . GEOGRAPHY 435 (Geo 575).
APPLIED GEOGRAPHIC INFORMATION SYSTEMS.
Spring 2008.

GENERAL INFORMATION:
COURSE DESCRIPTION: Application and mastery of advanced GIS software such as ESRI's ARCGIS version 9.2 program will be stressed. Projects involving building geo-spatial data in a variety of application areas including marketing, law enforcement infrastructure and natural resources management will be conducted. The goals of this course are to inculcate knowledge, skills and abilities through the use of advanced GIS software as well as an in-depth understanding of spatial analysis methods and how these technologies can be applied to solution of significant issues in the natural, human and business environments. A team project will build and foster inter-personal cooperation and team leadership skills.

Meets: Lectures Tu-Th 11:00-12:30 p.m. in Lee Drain Building (LDB) 328.
Instructor: Dr. Mark Leipnik.
Office Hours M 9-10, Tu. 8:30-9:30 Friday all day most days. (in LDB 328, or in office LDB 313 by arrangement).
Phone: Ex. 3698, email GEO_MRL@SHSU.EDU. Lecture notes are available on my home page on the web site: at shsu.edu\~geo_mrl. These notes may be brought into a word processing package, expanded to leave space for class notes and printed out and brought to class and used to prepare for exams, but should not substitute for attentive participation in class.

TEXTS: Mastering ArcGIS, 3rd Edition by Maribeth Price.

POLICIES:
GENERAL: Attendance in class is mandatory. Attendance will be taken at the beginning of each class. Students that are more than 10 minutes late will be considered absent.
EXAMS & GRADING: There will be three tests each worth 75 points covering three successive sections of the material covered in the book for a total of 225 points, and 5 lab module reports each worth 50-75 points for a total of 275 points. These reports will involve working through exercises 1-5 at the end of each of chapters two successive chapters 1-2, 3-4, 5-6, 7-8 (worth 50 points each), and one additional chapter (worth 75 points) of students choice with all exercises in that chapter, There will be an Group (or individual) research project worth 500 points. The lab projects will involve assignments from Mastering ARCGIS text. The research project will involve gathering data and structuring it for use in a GIS. Preparing 10-20 maps based on using that data will be worth 100 points, making a 20-30 minute power point presentation to the class will be worth 100 points and preparing a 10-20 page paper suitable for submission to a conference or technical journal will be worth 200 points (25 points for selection of topic, 25 for Outline and 50 for the Draft and 100 for the final report) generating a 2 large format plots will be worth 100 points. Excessive Absences will result in loss of points the first three absences will not result in any loss of points, but for each absence thereafter, 25 points will be deducted.

<u>TEAMS</u> Work on the lab assignments from Mastering ArcGIS will involve participation in a 2-3 person team sharing a computer and/or working in a coordinated manner on separate parts of the same overall assignment. The composition of the teams will be based on alphabetical order. It is possible that there may be either three member or 1 member teams given special circumstances.

Potential research projects are listed below. Basically these are two person team projects. In addition, if team members have their own project it may be possible to accommodate that.

1. Analysis of data gathered during hydrologic investigations in West Texas, including soils, aquifer and surface water data and hydraulic conductivity estimates. Open.

2. Creation of data and maps and spatial analysis related to tourism in the Crimea and Carpathian regions of the Ukraine.

3. Creation and analysis of data for the office of admissions of student recruitment and demographics.

4. Mapping (Geocoding) of customers and their demographics for Kaldi's Coffeehouse.

5. Mapping transportation issues and demographics in Abilene, San Angelo and Brazoria County, Texas.

5. Mapping the distribution of billionaires over time in the USA based on the Forbes 400 list.

6. Comparing the lifestyle segmentation proflles of selected areas as portrayed in PRIZM and Tapestry data sets.

6. Development of maps for Huntsville Chamber of Commerce for use in interactive web based mapping and other tourism and economic development activities.

7. Mapping of Training Areas for Army ROTC including Bastrop State Park and Gibbs Ranch.

8. Mapping the distribution of undercounted minority populations in the USA.

9. Study of the impact of the American Community Survey on geodemographics.

10. development of geologic and oil and gas resource maps for South-East Texas.

GRADING:

Out of 1,000 possible points that could be earned over the course of the semester, grades will be determined as follows:

A = 900-1,000 points. B = 750-900 points.   C = 600-750 points.   D = 500-600 points.

F = less than 500 points.

Note: Those students who earn less than the equivalent of a B on Tests or miss exams or assignments may (at the instructor's option) do extra credit assignments for up to a total of 50 points. These are likely to be research paper on an approved topic but could take the form of additional work on exercises in an additional Chapter in Price

ADDITIONAL INFORMATION:

FOR GRADUATE CREDIT: an additional book report or research paper of 20 pages in length will be required of graduate students enrolled in this class (this report will count for 20% of the lecture grade and the relative weight of other assignments will be adjusted accordingly). STUDENTS WITH A DISABILITY: It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) 294-1720. Any student seeking accommodations should go to the *Counseling Center and Services for Students with Disabilities* in a timely manner and complete a form that will grant permission to receive special accommodations.
ACADEMIC DISHONESTY: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of academic dishonesty including, but not limited to, cheating on examinations or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. At a minimum the student will receive a failing grade on the assignment in which dishonesty was involved, thus for a quiz worth 25 points copying of answers would result in the loss of those 25 points… Classroom Rules of Conduct: Students are expected assist in maintaining a classroom environment that is conducive to learning.   Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating or drinking in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported

to the Dean of Students for disciplinary action in accordance with university policy.
<u>VISITORS IN THE CLASSROOM</u>: Unannounced visitors to the classroom must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom.   This policy is not intended to discourage occasional visiting of classes by responsible persons. <u>Religious Holidays:</u> Students that are absent from class for the observance of a religious holy day are allowed to take an examination or complete an assignment scheduled for that day within reasonable time after the absence. The period of time during which assignments and exams will be excused includes travel time associated with the observance of the religious holy day.   A student who wishes to be excused for a religious holy day must present the instructor of each scheduled class that he/she will be absent from class for religious reasons with a written statement concerning the holy day(s) and the travel involved. The instructor should provide the student with a written description of the deadline for the completion of missed exams or assignments.

<u>**COURSE OUTLINE & ASSIGNMENTS:**</u>
In order to be well prepared for class students should read the chapters in the text book (Price) that pertains to that week's activities

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<u>**LECTURE 1: OVERVIEW.**</u>
Week 1. First Class Meeting. (Handout syllabus, go over policies, provide general overview) (Th. Jan 17)
No reading assignment this week.

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PART 1. ESRI's ARCGIS PRODUCT.
Week 2. Lec. 1. Confirm individual project assignments. What is GIS (Tu. Jan 22).
Lab. 1. GET WITH YOUR TEAM MATE Load CD on workstation install shortcuts to programs (ARCVIEW 3.3
ArcGIS 9.1, Word and Power-point) (Jan 24).
READ: Preface and Introduction and Chapter 1 to page 23 in Price.

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Week 3. Lec. 2 Overview of ARCGIS (Jan 29).
Lab. 2. SELECT RESEARCH PROJECT TOPIC (25 points) (Jan 31).
READ: Chapter 1 to page 52 in Price.

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Week 4. Lec. 3. ARCGIS Interface & ArcMAP (Feb 5).
Lab. 3. (Feb 7).
READ: Chapter 2 to page 86

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Week 5. Lec. 4. Symbols & Styles (Feb 12).
Lab. 4. Finish chapter 2 (Feb 14) Note a small party for Valentines day will be held.

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Week 6. Lec. 5. Map Projections (Feb 19)
Lab. 5. Turn in Module 1Chapters 1-2, Start Chapter 3. (Feb 21).
READ Chapter 3 in Price.

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Week 7. Lec. 6. Coordinate Systems (Feb 26).
Lab 6. Work on Chapter 3 (Feb 28)
TEST #1 (Feb. 28) Covers chapters 1- 3 in Price (75 points).
READ Chapter 4.

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Week 8. Lec. 7. Features & Tables (March 4).
Lab. 7. Work on Chapters 4 (March 6).
READ: Chapter 5 in Price. Week 10

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Week 9.   Lec. 8. Map Making (March 18).

            Lab. 8. Work on chapter 5 Turn in Module 2 Chapters 3 & 4 (March 20).
            READ: Chapter 6 in Price.

Week 11   Lec. 9.   Queries (March 25).

            Lab. 9. Chapter 6 tutorial. Do chapter 6 exercises 1-5,
            Turn in Module #3 covers chapters 5-6 (March 27).
            TEST # 2, 20 minutes at start of class 75 points.
            Covers Chapters 4-6 in Price.
            Individual Report Outline due 25 points (March 27)
            Read Chapter 7.

Week 12. Lec. 10. Spatial Joins & Map Overlay (April 1).
            Lab 10. Do Chapter 7 & 8 tutorials. Start Chapter 7 exercises 1-5 (April 3).
            Read, Chapter 8.

Week 13. Lec. 11. (April 6) Presenting Data (April 8).

            Lab 11. (April 8) Turn Module #4 Chapter 7 & 8 exercises (April 10).
            Read: Chapter 9 in Price.

Week 14. Lec. 12. Work on Independent project. (April 15).
            Lab 12. Do Chapter 9 exercises 1-5
            Turn in Module #5 (Chapter 9). (April 17).

Week 15. Lec. 13. TEST #3 covers chapters 7, 8 & 9 in Price
                Work on Independent project (April 22).
          Lab 13. Do one additional chapter, exercises 1-5 (75 points). (April 24).

Week 16. Work on independent project (April 29).
            Finish up work on Independent project. (May 1).
            Independent project Report Draft,
            Due May 1 (50 points).

Week 17. PRESENTATIONS BY STUDENTS: (May 6)
            PRESENTATIONS BY STUDENTS :(May 8)
            FINAL Independent project report and plots due May 8.

KEY DATES ASSIGNMENTS AND POINTS:

ASSIGNMENT	DATE	POINTS
TEST #1	Feb 28	75
TEST #2	March 27	75
TEST # 3	April 22	75
Project Presentations	May 2-4	100
Research project report topic	Jan. 25	25
Research report outline due	March 27	25
Research report draft	May 1	50
Final individual report due	May 8	100
Maps for report due	May 8	100
Plots for report due	May 8	100