COURSE SYLLABUS & OUTLINE. GEOGRAPHY 433.

GEOGRAPHIC FIELD METHODS/TECHNOLOGIES. SPRING 2008.

3 Units Credit.

INTRODUCTION:

Field Methods explores methods and technologies particularly global positioning systems (GPS) that are used to assist the collection and analysis of data about the natural and man-made environment. Students will experience field data collection methods and work as part of a team building team participatory and leadership skills. Factual information will be imparted through power-point based lectures, demonstrations in the field, use of computer and GPS technologies and via presentations by guest speakers. An appreciation for the increasing importance of geospatial technologies in solving major environmental and societal issues will be stressed. Concepts covered include map use and creation and GIS, capture and interpretation of aerial photography, orienteering and compass use, use of surveying instruments including laser total stations, use of global positioning systems technology and integration of GPS. GIS and digital photography. Areas where these materials, methods and technologies are applied that will be studied include, land surveying, hydrology, soil science, forestry, ecology and wetlands delineation, transportation and urban studies and crime scene and automobile accident reconstruction methods. There are no prerequisites for this course. There is no textbook, rather their will be hand-outs as appropriate.

Lecture meets Tuesday 2-4 pm in LDB room 328 with field work on Thursdays most weeks 2-4 in various interesting places. (Note Tuesday lectures will have a 10 min break after 1 hour, the Thursday field exercises will typically last slightly less than two hours including travel time; some may take slightly longer).

Instructor: Dr. Mark Leipnik. Room 313 Lee Drain Building. Office Hours. M 9-10, Tu. 8:30-9:30 Also most Fridays in LDB 328 or in LDB 313 (by prior arrangement). Phone: ex 3698 email GEO_MRL@SHSU.EDU. Homepage with lecture notes at Http://www.shsu.edu/~geo_mrl (I recommend that each student move the HTML file into a word processor as a text file and expand the lecture notes to provide more room for your own notes and to divide the notes by lecture, bring the notes to class with you).

POLICIES:

GENERAL: Attendance at lectures and during field exercises is mandatory and will be taken at the beginning of each class. Students that are more than ten minutes late will be considered absent.

<u>TEAMS & TEAM PROJECTS:</u> Each student will be assigned to a 4 member team. Membership in teams will be determined by alphabetical order of last names. Persons wishing to change teams should see the instructor after team composition is announced. Each team will receive a GARMIN GPS unit and retain that unit for use throughout the semester. Teams will use GEOROVER software and ArcGIS software to a limited extent to create maps from data obtained using GPS units. These units will be signed out by all team members and each team member will assume responsibility for safe return of the $249.00 unit. GPS units that are lost or stolen will result in failing grades for all members of the team to which the unit was assigned unless they opt to pay the replacement cost themselves (so be careful with your GPS unit!).

ASSIGNMENTS & GRADING: Since field studies is an applied "methods" course where much of the learning takes place in field exercises where material presented in lectures and by guest speakers is used to study the "real world" and since no text book is assigned (although some readings will be handed out as appropriate) this course will not have a traditional midterm or final exam. Rather, there will be six modules lasting two to three weeks each. At the last lecture in each module there will be a short quiz with ~15 T/F and multiple choice questions. Also each module will require the members of each team to submit a 5-10 page report for their team. Page length includes maps and photographs as appropriate. This report will be due at the first Thursday class meeting after the end of each module (except for module VI). This report will include results of field work, copies of field notes (including GPS coordinates) and information presented in the lecture. Also each team will be expected to include photographs taken during the course of field work. These photos can be either prints or output from a digital camera. I strongly recommend you consider obtaining a digital camera for this class. Additional information obtained from sources such as the Internet may also be appropriate for inclusion in the team reports. The team will maintain a field notebook and information from those field notes will be included in the team reports. Teams will use SAIC GEOROVER and ESRI ArcGIS software to create maps for each module using existing aerial photography and topographic maps as base-maps. There will be examples of best and worst land-use contest in module VI that will involve visiting and photographing various categories of land-use. Each team will present to the class during the last class meeting scanned or digital photos in a brief power-point presentation at the last class meeting. The best and worst examples in each of 6 categories of landuse, will earn all members of that team 10 bonus points. Attendance will also be used to determine the final grade on the following basis: Perfect attendance +100 points; 1-2 class meetings missed +75 points; 3-4 class meetings missed +50 points; 4-5 class meetings missed +0 points; More than 5 class meetings missed -25 points per missed class. One missed quiz can be made up with a 5 page research paper on a topic assigned by the instructor. Grades will be provided on returned quizzes at the next class meeting. Grades on module reports will be provided along with the returned report at the next class meeting after the report was due. Final grades will be posted on both blackboard and submitted to the registrar after the last module report has been returned the last regular week of instruction.

SUMMARY OF GRADING: 1,000 points possible: Each quiz is worth 50 points, 6 quizzes @ 50 pts = 300 points (30% of total). Each report is worth 100 points, 6 reports @ 100 pts = 600 points (60% of total).

Attendance up to 100 points (10% of total).

A = 900-1,000 points.

B = 750-900 points.

C = 600-750 points.

D = 500-600 points.

F = less than 500 points.

Extra Credit: Students wishing to make up for missed classes or to improve their grade may receive up to 25 points of extra credit for a report. The report must discuss geographic technology applicable to field work and be approved by the instructor. The report must be 5 pages in length double spaced with normal margins and no more than 12 point type and contain 5 relevant references. A quiz missed for what the instructor determines to be a valid reason can be replaced by the grade on a 5 page paper with the same content but with only one required reference. No more than 1 quiz grade can be replaced.

Graduate credit. The course is available for graduate credit with the requirement that a 20-30 page research paper on the application of geospatial or related technologies in gathering and analyzing field data in some application area be researched and prepared. The instructor must agree to the topic and will provide the student with appropriate references and guidance.

ADDITIONAL INFORMATION:

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.**

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.

VISITORS IN THE CLASSROOM: 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.

Religious Holidays: 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. . In such cases, the student will be required to take the test or submit the assignment early—unless there are good reasons for not being able to do so and the instructor has agreed to those reasons.

GEO 433. FIELD METHODS & STUDIES. COURSE OUTLINE:

Week 1. Lec. 1. First Class Meeting. (Thursday, Jan 17) (Handout syllabus, go over class policies, assign team composition.) No lab first week.

MODULE I WEEK 2-3: PART I. USE OF MAPS, GIS & AERIAL PHOTOGRAPHY:

Week 2. Lec. 2. Map & GIS use and map creation (Tuesday Jan 22).

Lab 1. ArcGIS mapping exercise LDB 328 (Thursday Jan 24).

Week 3. Lec. 3. Aerial Photography (Tuesday Jan 29).

Lab 2. Interpretation of aerial photos/ R.S. image processing (in LDB 328) (Thursday Jan 31).

MODULE II. WEEK 4-5: USE OF COMPASS AND SURVEY EQUIPMENT.

Week 4. Lec. 4. Navigation, and Compass and Chain, Level & Rod. (Video on Navigation) (Tuesday Feb. 5). (Quiz on MODULE I)

Lab 3. Compass use and scavenger hunt (Thursday Feb 7).

(MODULE I write-up due).

Week 5. Lec. 5. Surveying, benchmarks and surveying instruments (possible guest speaker). Demonstration of Benchmark web site. (Tuesday Feb 12).

Lab 4. Visit benchmarks near campus, demonstration of Total Station Surveying (S.H. Quad, etc, probable guest) Find and document benchmarks exercise (Independent effort) for lab using Benchmark web site. (Feb 14). Note Cake and Cookies will be served in honor of instructor making it this far….

MODULE III. WEEK 6-7: Global Positioning Systems.

Week 6. Lec. 6. GPS Theory (Tuesday Feb 19). (Quiz on MODULE II).

Lab 5. Introduction Garmin GPS Units (Bower stadium) Start scavenger hunt (Thursday Feb 21).

(MODULE II write-up due).

Week 7. Lec. 7. GPS Applications and Data Management (Tuesday Feb. 26).

Lab 6. Continue GPS "scavenger hunt" in Huntsville area. (Thursday Feb. 28)

MODULE IV. WEEK 8-10 WATER RESOURCES APPLICATIONS.

Week 8. Lec. 8: Hydrological Measurement Theory LDB 327 (Tuesday March 4.).

(Quiz on MODULE III)

Lab 7. Use of Hydrological Instrumentation (Environmental Field Studies Site (Fish Hatchery Rd.) (Thursday March 6.) (MODULE III write-up due).

----------SPRING BREAK----------
MARCH 10-14, conduct your own field investigations of beach parties….

Week 9. Lec. 9. Water Quality Measurement Theory (Tuesday March 18).

Lab 8. Water Quality Measurement (Riverside Natural Area) (Thursday March 20).

MODULE V. WEEK 11-13: SOILS & FORESTRY, ECOLOGICAL APPLICATIONS.

Week 11. Lec. 10. Soils: "Dirt in a Day" (Tuesday March 25). (Quiz on MODULE IV)

Lab 9. Soil Sampling Methods (Various Locations in Walker County) (Thursday March 27).

(MODULE IV write-up due).

Week 12. Lec. 11. Forestry Field Methods (Tuesday April 1).

Lab 10. Timber Cruising (Managed Forest, guest forester) (Thursday April 3)

Week 13. Lec. 12. Ecological/Vegetation Characterization/Wetland Delineation (April 8).

Lab 11. Sampling Plant Communities & Delineating Wetlands (Fish Hatchery) (April 10).

MODULE VI. WEEK 14-16 URBAN PLANNING AND

PLANNING, TRANSPORTATION/CJ APPLICATIONS OF FIELD METHODS.

Week 14. Lec. 13. Urban and Regional Planning (possible guest speaker)(April 15).

(Quiz on MODULE V)

Lab 12. Best and worst of landuse exploration (April 17).

(MODULE V write-up due).

Week 15. Lec. 14. Transportation Planning.

Transportation issues and methods (possible guest speaker) (April 22).

Lab 13. Study of accident sites, traffic enforcement methods, field sobriety demo (I 45 Feeder Road) (with Ken Foulch or other HPD officer(s)) (April 24).

Week 16. Lec. 15. Crime scene and/or accident reconstruction methods (April 29).

Lab 14. Crime Scene Methods (probable CSI speaker HPD or CPD) LDB 328 no field work likely, unless a student is willing to volunteer to be a murder victim… (May1).

Week 17. Lec. 16 (Quiz on MODULE VI & write-up on MODULE VI due) Best and worst land use examples from teams for extra points. (May 6)

Lab 15: Picnic/field trip to Huntsville State Park. (May 8).

Instructor will provide chips, dip, and soft drinks and fried chicken, students can bring whatever potluck item they are good at making (25 points extra credit for bringing a home-made food item, no home brew or moonshine though!).