

CATALOG YEAR 2011**(Please use separate form for each add/change)**COLLEGE/SCHOOL : College of Arts and SciencesCurrent Catalog Page(s) Affected Pg. 120, 315Number BIOL 5460__ Title *Advanced Geographic Information Systems*. SCH 4 SCH__Description This course will explore fundamental concepts of geographic information technologies with a focus on applications within the geosciences and natural sciences in general. Students will be exposed to the power of geographic information systems to elucidate complex problems. Prerequisite Graduate standing.**Course:**

(check all that apply)

Add: X**New** course will be part of major BIOL as a required or elective X course **New** course will introduce X, reinforce , or apply concepts

Justification: This course has now been taught as a special topics course twice with graduate students in biology and most recently closed early during registration indicating a demand for this topic. This course will be cross-listed with GEOL 4460 and BIOL 4460.

If new, provide Course Prefix, Number, Title, **Measurable** Student Learning Outcomes, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current online catalog, provide change and attach text with changes in red and provide a brief justification.**Program:** Add: Change: Attach new/changed Program of Study description and 4-year plan. If in current catalog, copy and paste the text from the and indicate changes in red.**Minor:** Add: Delete: Change: Attach new/changed minor. If in current catalog, copy and paste the text from the and indicate changes in red.**Faculty:** Add: Delete: Change: Attach new/changed faculty entry.If in current catalog, copy and paste the text from the and indicate changes in red.**College Introductory Pages:** Add information: Change information: Attach new/changed information. If in current catalog, copy and paste the text from the and indicate changes in red.

Approvals:

Signature

Date

Chair
Department Curriculum Committee

Chair
Department

Chair
College Curriculum Committee

Dean

BIOL 5460
Special Topics in Biology and Geosciences - Advanced GIS
Spring 2011

Class Location: LBV Science Center, Rm. 108

Instructor: Dr. Kenneth J. Tobin

Office: LBV Science Center, Rm. 346A

Phone: (956) 326 - 2417

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Office Hours: MWF 9:30-10:30 am; T 3:30-5 pm; F 3-4:30 pm

Course Description:

Advanced Geographic Information Systems.

Learning Objectives:

Students will be able to define and discuss fundamental geographic principles.

Students will be able to identify and discuss the characteristics of GIS.

Students will be able to integrate an understanding how the digital geographic data is produced.

Students will be able describe and distinguish the different procedures used to manipulate digital geographic data.

Textbook:

Scheerman, 2004, GIS: A Short Introduction. Wiley, 184 p/

Instruction:

Laboratory exercises, Internet assignments, lecture, class interactions, quizzes and exams.

Policies of the College of Arts and Sciences

Classroom Behavior

The College of Arts and Sciences encourages classroom discussion and academic debate as an essential intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize a university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

Plagiarism and Cheating

Plagiarism is the presentation of someone else's work as your own. 1) When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. 2) When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. 3) When you present someone else's paper or

exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the Manual of The American Psychological Association (APA):

Plagiarism: Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. Each time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

Consult the Writing Center or a recommended guide to documentation and research such as the Manual of the APA or the MLA Handbook for Writers of Research Papers for guidance on proper documentation. If you still have doubts concerning proper documentation, seek advice from your instructor prior to submitting a final draft.

Penalties for Plagiarism: Should a faculty member discover that a student has committed plagiarism, the student will receive a grade of 'F' in that course and the matter will be referred to the Honor Council for possible disciplinary action. The faculty member, however, has the right to give freshmen and sophomore students a “zero” for the assignment and to allow them to revise the assignment up to a grade of “F” (50%) if they believe that the student plagiarized out of ignorance or carelessness and not out of an attempt to deceive in order to earn an unmerited grade. This option is not available to juniors, seniors, or graduate students, who cannot reasonably claim ignorance of documentation rules as an excuse.

Penalties for Cheating: Should a faculty member discover a student cheating on an exam or quiz or other class project, the student will receive a “zero” for the assignment and not be allowed to make the assignment up. The incident must be reported to the chair of the department and to the Honor Council. If the cheating is extensive, however, or if the assignment constitutes a major grade for the course (e.g., a final exam), or if the student has cheated in the past, the student should receive an “F” in the course, and the matter should be referred to the Honor Council. Under no circumstances should a student who deserves an “F” in the course be allowed to withdraw from the course with a “W.”

A new grade to denote academic dishonesty is now available, a “M” for “Academic Misconduct.” It has the same effect as an “F” but will indicate on the transcript that the failure was due to academic misconduct.

Student Right of Appeal: Faculty will notify students immediately via the student’s TAMIU e-mail account that they have submitted plagiarized work. Students have the right to appeal a faculty member’s charge of academic dishonesty by notifying the TAMIU Honor Council of their intent to appeal as long as the notification of appeal comes within 3 business days of the faculty member’s e-mail message to the student. The Student Handbook provides details.

UConnect, TAMIU E-Mail, and Dusty Alert

Personal Announcements sent to students through TAMIU’s UConnect Portal and TAMIU E-mail are the official means of communicating course and university business with students and faculty – not the U.S. Mail and not other e-mail addresses. Students and faculty must check UConnect and their TAMIU e-mail accounts regularly, if not daily. Not having seen an important TAMIU e-mail or UConnect message from a faculty member, chair, or dean is not accepted as an excuse for failure to take important action. Students, faculty, and staff are encouraged to sign-up for Dusty Alert (see www.tamtu.edu). Dusty Alert is an instant cell phone text-messaging system allowing the university to communicate immediately with you if there is an on-campus emergency, something of immediate danger to you, or a campus closing.

Copyright Restrictions

The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to \$100,000; criminal penalties include a fine up to \$250,000 and imprisonment.

Students with Disabilities

Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student's responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

Incompletes

Students who are unable to complete a course should withdraw from the course before the final date for withdrawal and receive a “W.” To qualify for an “incomplete” and thus have the opportunity to complete the course at a later date, a student must meet the following criteria:

1. The student must have completed 90% of the course work assigned before the final date for withdrawing from a course with a “W”, and the student must be passing the course;
2. The student cannot complete the course because an accident, an illness, or a traumatic personal or family event occurred after the final date for withdrawal from a course;

3. The student must sign an “Incomplete Grade Contract” and secure signatures of approval from the professor and the college dean.

4. The student must agree to complete the missing course work before the end of the next long semester; failure to meet this deadline will cause the “I” to automatically be converted to a “F”; extensions to this deadline may be granted by the dean of the college.

This is the general policy regarding the circumstances under which an “incomplete” may be granted, but each college may have variations of this policy to address special circumstances in specific programs.

Student Responsibility for Dropping a Course

It is the responsibility of the STUDENT to drop the course before the final date for withdrawal from a course. Faculty members, in fact, may not drop a student from a course.

Independent Study Course

Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS course must continue through both summer sessions.

Grade Changes & Appeals

Faculty are authorized to change final grades only when they have committed a computational error, and they must receive the approval of their department chairs and the dean to change the grade. As part of that approval, they must attach a detailed explanation of the reason for the mistake. Only in rare cases would another reason be entertained as legitimate for a grade change. A student who is unhappy with his or her grade on an assignment must discuss the situation with the faculty member teaching the course. If students believe that they have been graded unfairly, they have the right to appeal the grade using a grade appeal process in the Student Handbook and the Faculty Handbook.

Final Examination

Final Examination must be comprehensive and must contain a written component. The written component should comprise 20% of the final exam grade. Exceptions to this policy must receive the approval of the department chair and the dean at the beginning of the semester.

Lecture Schedule:

		Readings
Week of Jan 17	1-Class Introduction	
Week of Jan 24	2-Review of Latitude and Longitude	Chp. 1
Week of Jan 31	3-Scale, Projections, and Datums	Chp. 1
Week of Feb 7	4- GIS - Geography and Natural Sciences Applications	Chp. 2
Week of Feb 14	5-Overview GIS Data Sources	TBA
Week of Feb 21	6-Introduction to Metadata	TBA
Week of Feb 28	7-Introduction to GIS Data Collection	Chp. 3
Week of Mar 7	8-Land Surveying and GPS Technology	TBA

Week of Mar 14	SPRING BREAK – NO LECTURE	
Week of Mar 21	9-Data Representation and Map Making	Chp. 3
Week of Mar 28	10-Overview of Vector Data - Geocoding and Topology	TBA
Week of Apr 4	11-Aerial Photographs and Reference Maps	TBA
Week of Apr 11	12-Representing Terrain with Digital Elevation Models	TBA
Week of Apr 18	13-Introduction to Remote Sensing	TBA
Week of Apr 25	14-Introduction to Spatial Analysis	Chp. 4
Week of May 2	15-Where you can go from here with GIS?	Chp. 5

Quiz and Exam Schedule:

	Lectures	Due Date
Quiz 1	1, 2, 3	Feb 2 (5 pm)
Quiz 2	4, 5, 6	Mar 2 (5 pm)
Quiz 3	7, 8, 9	Mar 30 (5 pm)
Quiz 4	10, 11, 12	Apr 20 (5 pm)
Final Exam	All (With Special Focus on 13, 14, 15)	May13 (5 pm)

Hands-on Activities:

		Due Date
Week of Jan 24	Ass. 1-Review of Latitude and Longitude	Feb 2 (5 pm)
Week of Jan 31	Ass. 2-Review of Scale, Projections, and Datums	Feb 9 (5 pm)
Week of Feb 7	Register for ESRI Web Course and Install GIS Software on Personnel Computer (If you have one)	
Week of Feb 14	Ass. 3-Exploration of On-line GIS Data Sources	Feb 23 (5 pm)
Week of Feb 21	Ass. 4-Exploration of Metadata	Mar 2 (5 pm)
Week of Feb 28	Work on Web Course	
Week of Mar 7	Ass. 5-Collection of GPS Data	Mar 21 (5 pm)
Week of Mar 14	SPRING BREAK – NO ACTIVITIES	
Week of Mar 21	Ass. 6-Importing GPS Data into a GIS System	Mar 25 (5 pm)
Week of Mar 28	Ass. 7-Making a Map On-line	Apr 6 (5 pm)
Week of Apr 4	Ass. 8-Mapping the Census	Apr 13 (5 pm)
Week of Apr 11	Ass. 9-Data Exploration Using GIS	Apr 20 (5 pm)
Week of Apr 18	Work on Final Project	
Week of Apr 25	Work on Final Project - Paper	May 5 (5 pm)
Week of May 2	Wrap up Web Course-Provide Proof of Completion	May 5 (5 pm)

Evaluation of Students (BIOL 4499/5499/GEOL 4499):

	Total
Quizzes (5 pts each)	20%
Final Exam	15%
Assignments (Best 8 out of 9; 5 pts each)	40%
Web Course	15%
Final Project Paper	10%

All assignments will be docked 10 pts for each day late.