GISC 00000 Applied Mathematics

Where: GR3.6000
When: Tues 4:00-6:45 Wed 7:00-9:45pm
(note: WebCT is not used)

Professor Contact Information

Dr. Adam Smith
Office: GR 3.000
adamsmith@utdallas.edu (I do not use WebCT for contact)
972-884-0000(office) (e-mail is preferred over phone contact)
972-345-0000 (cell, if urgent)
Office hours: Tues/Th 3:00-4:00; Wed 6:30-7:00 and by appointment or drop-in

TA Contact Information

David Ricardo
Office: GR 3.126
davidricardo@utdallas.edu
972-000-000 (office)
Office hours: Th 7:00-10:00; Sat 1:00-6:00

Course Pre-requisites, Co-requisites, and/or Other Restrictions

ECO 000 Applied Mathematics is a prerequisites, and students will be expected to have competence in microcomputer use, familiarity with MS Windows 95/98/2000/XP (file management (directories, subdirectories, copying, etc), MS Word, MS Excel and Internet usage.

Course Description

This course further develops hands-on skills with industry-standard GIS software beyond the level acquired in ECO 0000 Math Fundamentals, which is a pre-requisite for this course, for application in a wide variety of areas including urban infrastructure management.

In particular, it aims to make the transition from GIS as a descriptive, data management tool to GIS as an analytical research tool for drawing policy-relevant conclusions from vector data. To a degree, it is a

companion course to ECO 0000 Spatial Analysis which focuses on raster data. Upon completion of Math Fundamentals, you should have a thorough understanding of the fundamentals of a modern GIS software environment and the necessary applied skills to independently complete a GIS project including establishing objectives, reviewing literature and/or practices elsewhere, identifying, acquiring, converting and integrating the required data, creating GIS layers (themes) in multiple different formats, editing, correcting and modifying GIS layers, conducting geographic analyses, customizing software applications, and drawing and presenting legitimate conclusions and results. These skills will be essential for completing work in other courses in the geographical information sciences curriculum at UTD and for conducting GIS projects ``in the real world''.

Student Learning Objectives/Outcomes

Upon completing this class, students will be able to:

- Understand more advanced topics in applied GIS such as spatial files formats, topology, georeferencing, network modeling, surface interpolation
- Perform vector-based operations and analysis on all major types of geographic features: points, lines and networks, polygons, and surfaces.
- Implement GIS applications in a wide variety of areas including urban infrastructure management, marketing and location analysis, environmental management, geologic and geophysical analysis and the social sciences

Required Textbooks and Materials

- O'Sullivan and David J. Unwin Geographic Information Analysis Hoboken, NJ: Wiley 2003 (referred to as O&U)
- Zeiler, Modeling our World: The ESRI Guide to Database Design ESRI: Redlands, CA (as used in GISC 6383 GIS Management and Implementation)

Grading Policy

Evaluation will be based upon a set of three assigned projects (one each broadly associated with Mapping, Editing, and Analysis, for a total of 30%), a fourth (final), student-selected research project (25%), and a hands-on computer based ``mid-term'' exam (45%). Additionally, there will be seven smaller exercises which must be completed but will not be ``handed-in'' or graded. In all cases, students are expected to hand in work they have accomplished themselves. Because of the great variability possible with ArcGIS, no two student products should be identical or almost identical. You should be aware that assignments may require a substantial amount of work outside of class time. Some work will require use of the ARCInfo software level which is not available for use at home so this work must be conducted in the GIS lab on campus. Students who fail the hands-on exam will be given an opportunity to re-take the exam. If they fail a second time, they will receive no better than a C in the course.

Course & Instructor Policies

(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

Exams will be at the times indicated below. Students unable to attend must inform the instructor ahead of time in which case an accomodation will be attempted for verifiable problems. Exercises are expected to be handed in on the due dates specified below; an occasional delay will be acceptable providing it does not extend beyond the time that exercises are returned to other students (normally one week following the due date). Exercises handed in after that time will be credited, at a maximum, with the lowest score received by a student in the class.

Students are expected to attend every class and arrive on time. An occasional missed class is acceptable since work and family conflicts are sometimes unavoidable but beyond one or two is considered excessive and can result in a grade penalty. Each student has the responsibility to access all information presented during a missed class session from other sources; the faculty instructor is not responsible for ensuring that students have missed materials. All course materials are on the course web site.

Students are expected to display a positive attitude toward learning by paying attention (e.g. not sleeping), conducting themselves with civility and respect for others (e.g., sharing thoughts and actively listening to the thoughts and comments of peers and the instructor), and general good, courteous behavior, including not engaging in cell phone conversations (which should be silenced), personal movies/TV, e-mail checking or web surfing, reading personal materials, or social discussion during class time.

Course Timetable Version of 1/2/2008

Date	Topic	Notes	Readings	Assignments
Jan 8	GIS Data Types and Structures using ArcCatalog	ppt pdf	O&U pp1-17; Zeiler Chap. 1	
Jan 8	GIS Data Types and Structures using ArcCatalog	ppt pdf	O&U pp1-17; Zeiler Chap. 1	
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General Policies

Field Trip Policies

Off-campus Instruction and Course Activities: Not applicable to this course

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, A to Z Guide, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3, and in Title V, Rules on Student Services and Activities of the university's Handbook of Operating Procedures. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general

catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's Handbook of Operating Procedures.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called ``the respondent''). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the deal will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students,

where staff members are available to assist students in interpreting the rules and regulations.

Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

Disability Services

The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.

The contact information for the Office of Disability Services is:
The University of Texas at Dallas, SU 22
PO Box 830688
Richardson, Texas 75083-0688
(972) 883-2098 (voice or TTY)

Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.

It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

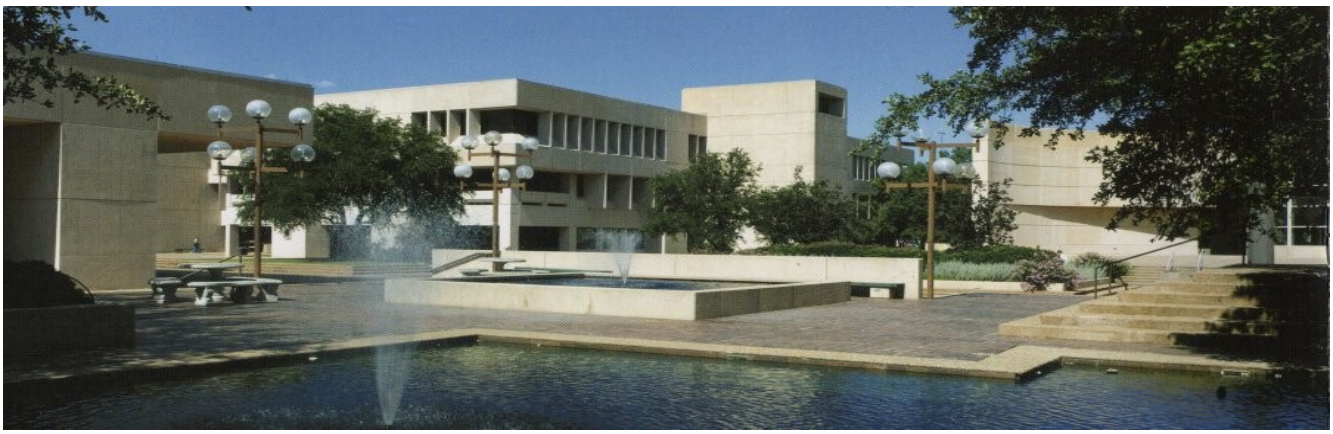
The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the

exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the Professor.



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Updated: 04/13/08