3 DIMENSIONAL ANALYSIS IN GIS
GISC 1147-23501

Day/Time: Labs: Wednesdays only 2:20 PM – 4:20 PM
Location: EMGI H105

Professor: J. Scott Sires
Office: EMGI H115
Office phone: 972-860-4362
Office hours: Monday None
Tuesday 12:20 p.m. – 3:20 p.m.
Wednesday 4:30 p.m. – 6:30 p.m.
Thursday None
Friday None
Email: ssires@dcccd.edu

Lab Coordinator: Jerry Bartz
Office: EMGI H105
Office phone: 972-860-4796
Open Lab: M T W R, 9:00 a.m. to 5:00 p.m.
Email: gbartz@dcccd.edu

Textbooks: Required text None for this course.

COURSE INFORMATION

Number: 1147  Section:  23501  Credit Hours: 1

Description: Focuses on the principles and usage of three-dimensional (3-D) surfaces in Geographic Information Systems (GIS). Students will learn how to prepare Triangulated Irregular Networks (TIN) and incorporate them into 3-D scenes for enhanced data visualization. (2 Lab.)

Prerequisites: None. Knowledge of GIS is recommended.

Objectives: This course will provide the student with the practical and applied concepts of 3d data and processes within Geographic Information Systems (GIS) technology. By completing this course student will:
Understand terms specific to 3d GIS
Develop an increased understanding of 3d GIS concepts and applications.
Create 3d data and surfaces
Display and symbolize 3d data and surfaces in a GIS environment
Discuss the similarities and the difference in vector and raster 3d
Analyze lines of sight, paths and other 3d processes
Animate GIS data
Build geo-databases that incorporate Z value 3d data.
Organize data and project, and presentation of results.
Gain practical experience using advanced features of ArcGIS.
Better understand GIS career options.
Be able to integrate various data into GIS to create applications for business purposes.
Week number | Date | Topic of Study
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1 | 1/22 | Introductory Concepts, Terms And General Discussion.
Understanding the earth’s surface and how features can be on the surface, below it or above it. Also thought of as the feature BASE and the feature EXTRUSION. Relate to feature properties and project properties.
What is 3D in GIS? Esri’s ArcGIS 10 3D Analyst extension – what is it?
Wrap: Essential 3D Analyst vocabulary (ArcGIS Resource Center\Help\Desktop10\Extensions).
2 | 1/29 | Quick Tour of Esri’s ArcGIS 3D Analyst Extension and toolbar.
3D Data Overview access in AMap, ACatalog, AGlobe, AScene Fundamentals of 3D Analyst (ArcGIS Resource Center\Help\Desktop10\Extensions)
Terms And TLAs
3 | 2/05 | Exercise 1: Draping an image over a terrain surface
Exercise 2: Visualizing contamination in an aquifer
Exercise 3: Visualizing soil contamination and thyroid cancer rates
Exercise 4: Building a TIN to represent terrain
4 | 2/12 | Exercise 5: Working with animations
Exercise 6: ArcGlobe basics
Exercise 7: ArcGlobe layer classification
Exercise 8: Creating and using a terrain dataset
Exercise 9: Creating a realistic 3D view
5 | 2/19 | Guidebook – Analyzing Threat
6 | 2/26 | Guidebook – Creating 3D Buildings
7 | 3/05 | Belize Mapping the Sea Floor – discussion of tasks, workflows and goals
8 | 3/12 | SPRING BREAK WEEK
9 | 3/19 | Process Belize collected data adjusted to mean sea level
10 | 3/26 | LiDAR processing tutorial
11 | 4/02 | BHC Campus 3D Data creation surface and foundation - LiDAR
12 | 4/09 | BHC Campus 3D Data creation buildings
13 | 4/16 | BHC Campus 3D Data creation vector walking routes
14 | 4/23 | Continue BHC campus projects
15 | 4/30 | Complete BHC campus projects
16 | 5/07 | Discussion of Navigation & Animation
Set Targets and Observers
Animated Rotation and the Viewer Manger
The Fly Tool
17 | 5/14 | Final Project Turned In as Final.

Recommendations:
Industry periodicals and web-sites as mentioned throughout the course.
Storage device; to be used in this class as well as all other program courses.
Ask for help before due dates and before test dates.

Assessments:
Lecture attendance and participation 10 %
Portfolio of Lab product 10 %
Exercise & Lab results 60%
Final Project 20%

Attendance: You are expected to attend all lectures and labs. It is your responsibility to withdraw from this course if necessary. If you stop attending class your final grade will be determined as shown in the above “Assessments” with zeros for all grades missed.

ADA Statement: If you are a student with a disability and/or special needs who requires accommodations, please contact the college Disability Services Office, in the S Building, Room S-124, 972-860-4847.

Religious Holidays: Absences for observance of a religious holy day are excused. The student is required to notify the instructor 10 days prior to the holiday. A student whose absence is excused to observe a religious holy day is allowed to take a make-up examination or complete an assignment within a reasonable time after the absence.

Academic Dishonesty: Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion. As a college student, you are considered a responsible student. Your enrollment indicates acceptance of the Dallas County Community Colleges Code of Student Conduct published in the Dallas County Community Colleges Catalog. https://www1.dcccd.edu/cat0506/ss/code.cfm

Pay specific attention to Pages 3 of 5 and 4 of 5 of the STUDENT RIGHTS AND RESPONSIBILITIES, STUDENT CONDUCT, item number 11 defines how we define cheating.

Withdrawal Policy: If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by Thursday, April 17, 2014. Failure to do so will result in your receiving a performance grade, usually an “F”. If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a “W” (Withdraw) in each class dropped.

Six Drop Issue: **STOP BEFORE YOU DROP**

For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop. You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions. Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access: https://www1.dcccd.edu/coursedrops

Repeating this course: Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be
charged a higher tuition rate. Third attempts include courses taken at any Dallas County Community Colleges since the Fall 2002 Semester.

Classroom Policies: Food IS allowed in the classroom but you take responsibility for any property damage that results from your food or drink; regardless of how the damage occurred. Drinks ARE allowed in the classroom, WITH TIGHT FITTING LIDS ONLY, but you take responsibility for any property damage that results from your food or drink; regardless of how the damage occurred.

Cell Phones are to be silent at all times within the classroom. Cell phones are not to be used during class lecture nor during labs.

Etiquette will be observed at all times in the classroom.
We will not tolerate students talking over the instructor or guests.
At no time may a student touch the keyboard or other input devices on any PC except their own.
At no time will a student remove, delete or erase any files from any PC other than files they have created on the PC they are using at that class time.
At no time will a student write-over an existing file on any PC other than on the PC they are using at that class time.
At all times all students will respect shared devices and data.
Students will prepare for class as needed and directed.
Students will participate in class discussions and will NOT perform other work, email, surf the internet or other activities during class.
Behavior unacceptable to the instructor will result in removal from class.

U Drive folder and access Email process and requirements Copy of ArcGIS

If you are receiving Financial Aid grants or loans, you must begin attendance in all classes. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds.

Cell phones and pagers are no longer allowed in the Testing Center.

COURSE EDUCATIONAL OBJECTIVES
1. Understand and apply methods and appropriate technology to the study of the geospatial technologies.
2. Recognize geographic and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
3. Identify and recognize the differences among competing geographic theories.
4. Demonstrate knowledge of the major issues and problems facing geospatial technologies, including issues that touch upon ethics, values, and public policies.
5. Demonstrate knowledge of the interdependence of geospatial technology and their influence on, and contribution to modern culture.

COURSE INTELLECTUAL COMPETENCIES
1. Reading – The ability to analyze and interpret a variety of printed materials – books, documents, and articles.
2. Writing – The ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience.
3. Speaking – The ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion, and audience.
4. Listening – Analyze and interpret various forms of spoken communication, possess sufficient literacy skills of writing, and reading.
5. Critical Thinking – Think and analyze at a critical level.

Right to Change syllabus: The instructor reserves the right to amend this syllabus as necessary.