BAE 585 Course Syllabus

BAE 585 – AutoCAD Civil 3D - GIS Integration

Section 601

FALL 2013

1 Credit Hour

Course Description

Integration of AutoCAD Civil 3D and GIS. Accessing and importing GIS data into C3D. Exporting C3D objects to GIS for subsequent manipulation and display. Emphasis on applications in environmental engineering projects such as stream restoration and wetland design.

Learning Outcomes

Students will be able to:

- conduct basic operations in AutoCAD Civil 3D related to environmental applications,
- access GIS data from Civil 3D and use it for design work,
- export data in GIS formats for use in packages such as ArcGIS.

Course Structure

One online session per week for demonstrations of software and methods.

Regular homework exercises.

Semester project on a topic selected by the student (subject to instructor approval).

Instructors

R. L. Huffman (huffman) - Instructor
Email: huffman@ncsu.edu (recommended)
Web Page: http://www.bae.ncsu.edu/people/faculty/huffman/
Phone: 919-515-6740
Fax: 919-515-7760 (not recommended)
Office Location: 151 DS Weaver Labs
Office Hours: By appointment
Course Meetings

Lecture

Days: M  
Time: 4pm - 5pm  
Campus: Main  
Location: Online

This meeting is required.

Course Materials

Textbooks

This text is recommended for those who need instruction on the basic operation of AutoCAD Civil 3D. This text does not cover the main content of this course, i.e., integration of GIS data.

AutoCAD Civil 3D 2014 Essentials - Chappell  
Edition: 1  
ISBN: 9781118575024  
Cost: $45

A 2013 version is also available; ISBN: 9781118244807. If you are using Civil 3D 2013, you may want to get this text.  
This textbook is optional.

Expenses

None.

Materials

Software: AutoCAD Civil 3D 2014 (or 2013) - A free student license is available from Autodesk, Inc.  
This material is required.

Requisites and Restrictions

Prerequisites

None.

Co-requisites

None.
Restrictions

None.

General Education Program (GEP) Information

GEP Category

This course does not fulfill a General Education Program category.

GEP Co-requisites

This course does not fulfill a General Education Program co-requisite.

Transportation

This course will not require students to provide their own transportation. Non-scheduled class time for field trips or out-of-class activities is NOT required for this class.

Safety & Risk Assumptions

None.

Grading

Grade Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>70</td>
<td>Complete and submit regular homework exercises</td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>Specify and conduct a project integrating C3D and GIS that demonstrates ability to create and manipulate objects, create and assign attributes, and transfer objects between realms with preservation of attributes.</td>
</tr>
<tr>
<td>Project</td>
<td>30</td>
<td></td>
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</tbody>
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Letter Grades

This Course uses Standard NCSU Letter Grading:

- $97 \leq A \leq 100$
- $93 \leq A^- < 97$
- $90 \leq B^- < 93$
- $87 \leq B+ < 90$
- $83 \leq B < 87$
- $80 \leq B^- < 83$
- $77 \leq C+ < 80$
- $73 \leq C < 77$
70≤C- <73
67≤D+<70
63≤D  <67
60≤D- <63
0≤F<60

Requirements for Credit-Only (S/U) Grading

Performance in research, seminar and independent study types of courses (6xx and 8xx) is
evaluated as either "S" (Satisfactory) or "U" (Unsatisfactory), and these grades are not used in
computing the grade point average. For credit only courses (S/U) the requirements necessary to
obtain the grade of "S" must be clearly outlined.

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at

Auditors must complete all exercises, projects, and exams with a passing grade.

Policies on Incomplete Grades

If an extended deadline is not authorized by the Graduate School, an unfinished incomplete
grade will automatically change to an F after either (a) the end of the next regular semester in
which the student is enrolled (not including summer sessions), or (b) by the end of 12 months if
the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an
attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility
of the student. The university policy on incomplete grades is located at
http://policies.ncsu.edu/regulation/reg-02-50-03. Additional information relative to incomplete
grades for graduate students can be found in the Graduate Administrative Handbook in Section
3.18.F at http://www.fis.ncsu.edu/grad_publicns/handbook/

Late Assignments

Accommodation for work schedules will be made if the instructor is notified in a timely manner.
Otherwise, late submissions may be penalized 30 percent of the maximum possible score.

Attendance Policy

For complete attendance and excused absence policies, please see
http://policies.ncsu.edu/regulation/reg-02-20-03

Attendance Policy

Regular participation in class sessions is expected.
Absences Policy

Excuses for missed/late work will be accepted at the instructor's discretion. Advance notice of anticipated absences should be given by email.

Makeup Work Policy

Individual arrangements will be made for makeup work if an absence is excused. If the absence is unexcused, no provision will be made for makeup work.

Additional Excuses Policy

None.

Academic Integrity

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at http://policies.ncsu.edu/policy/pol-11-35-01

None.

Academic Honesty

See http://policies.ncsu.edu/policy/pol-11-35-01 for a detailed explanation of academic honesty.

None.

Honor Pledge

Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment." This implicitly includes all electronic submissions.

Electronically-Hosted Course Components

Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Electronically-hosted Components:
An online forum will be used for Q&A or other matters relevant to the course. Online sessions will use the Collaborate web-conferencing software. Moodle will be used for delivering materials, assignment submissions and returns, and grading.

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (http://www.ncsu.edu/dso), 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at http://policies.ncsu.edu/regulation/reg-02-20-01.

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at http://policies.ncsu.edu/policy/pol-04-25-05 or http://www.ncsu.edu/equal_op/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

Course Schedule

NOTE: The course schedule is subject to change.

Lecture M 4pm - 5pm — Week 1 — 08/21/2013 - 08/23/2013
Introduction to the AutoCAD Civil 3D user interface

Lecture M 4pm - 5pm — Week 2 — 08/26/2013 - 08/30/2013
Drawings and drawing in C3D

Lecture M 4pm - 5pm — Week 3 — 09/02/2013 - 09/06/2013
Survey data & Surfaces (There will not be an online session due to Labor Day. Materials will be provided online.)
Lecture M 4pm - 5pm — Week 4 — 09/09/2013 - 09/13/2013
Surfaces & Contours

Lecture M 4pm - 5pm — Week 5 — 09/16/2013 - 09/20/2013
GIS Data: Sources, Formats, & Projections

Lecture M 4pm - 5pm — Week 6 — 09/23/2013 - 09/27/2013
C3D GIS interface

Lecture M 4pm - 5pm — Week 7 — 09/30/2013 - 10/04/2013
Accessing & manipulating GIS data

Lecture M 4pm - 5pm — Week 8 — 10/07/2013 - 10/11/2013
C3D Surfaces from GIS data

Lecture M 4pm - 5pm — Week 9 — 10/14/2013 - 10/18/2013
Creating GIS objects in C3D

Lecture M 4pm - 5pm — Week 10 — 10/21/2013 - 10/25/2013
Exporting GIS data from C3D

Lecture M 4pm - 5pm — Week 11 — 10/28/2013 - 11/01/2013
Working with images and surfaces

Lecture M 4pm - 5pm — Week 12 — 11/04/2013 - 11/08/2013
External references and attachments

Lecture M 4pm - 5pm — Week 13 — 11/11/2013 - 11/15/2013
Projects

Lecture M 4pm - 5pm — Week 14 — 11/18/2013 - 11/22/2013
Projects

Lecture M 4pm - 5pm — Week 15 — 11/25/2013 - 11/26/2013
Projects

Lecture M 4pm - 5pm — Week 16 — 12/02/2013 - 12/05/2013

Projects