

Course Information

Friday, September 12, 2025 1:48 PM

Course Description

Use of software to depict engineering designs involving 2- and 3-D model development and topographic mapping.



CVEEN 1400 - 001 Computer-Aided Design

Class Number: 12299 Instructor: BARTLETT, STEVEN FLOYD Component: Lecture Type: In Person
Units: 3.0 Wait List: Yes [View Feedback](#)

Days / Times
TuTh/09:10AM-10:30AM

Locations
WEB L210

CVEEN 1400 - 002 Computer-Aided Design

Class Number: 12301 Instructor: BARTLETT, STEVEN FLOYD Component: Lecture Type: In Person
Units: 3.0 Wait List: Yes [View Feedback](#)

Days / Times
TuTh/02:00PM-03:20PM

Locations
WEB L210

Textbooks (None) - The instructor provides notes and videos

Office Hours: Rm L210 WEB T,Th 10:30 to 11:30 a.m, T, Th, 3:20 to 4:20 p.m.

Or by appointment, send an email to bartlett@civil.utah.edu

TAs - Jun Ha Kim (both sections) u1299902@utah.edu

Office hrs. in class (T,Th 9:10-10:30 a.m. and 2:00 to 3:20 p.m.)

Web Helps:

AutoCAD

<https://knowledge.autodesk.com/support/autocad>

AutoCAD Civil 3D

<https://knowledge.autodesk.com/support/civil-3d>

Course Materials:

- Reading materials, video homework and reading schedules will be posted on Canvas and YouTube
- No Exams will be given in this class.

Instructor

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Steven Bartlett

Department of Civil and Environmental Engineering, University of Utah

CME Building 114

Mailing address 106 S. Central Campus Dr., CME Bldg. Rm 114, Salt Lake City, UT 84112

Phone: (435)841 9837, email: bartlett@civil.utah.edu

Career Objectives

- Provide rapid construction solutions for infrastructure and transportation needs.
- Reduce the seismic vulnerability of the built environment through hazard and risk assessment, design, mitigation, and seismic retrofitting.
- Inspire students to obtain leadership in the engineering community.

Education

Ph.D., Civil Engineering, Brigham Young University, May 1992

B.S., Geology, Brigham Young University, December 1983

Dissertation

“Empirical Analysis of Horizontal Ground Displacement Generated by Liquefaction-Induced Lateral Spread,” Brigham Young University, August 1991.

Professional Positions and Appointments

- Associate Chair, Civil and Environmental Engineering Asia Campus, Incheon, South Korea, 2018 to 2022
- Associate Professor, Civil and Environmental Engineering, University of Utah, 2007 to present.
- Assistant Professor, Civil and Environmental Engineering, University of Utah, 2000 to 2007.
- Adjunct Assistant Professor, Department of Civil and Environmental Engineering, Brigham Young University, 2001 to 2008.
- Research Project Manager, Research Division, Utah Department of Transportation (UDOT), Salt Lake City, Utah, 1998 to 2000.
- Project Engineer, Woodward-Clyde Consultants, Salt Lake City, Utah, 1996 to 1998.
- Senior Engineer, Westinghouse Savannah River Company, Aiken, South Carolina, 1991 to 1996.
- Research Assistant, Brigham Young University, Provo, Utah, 1988 to 1991.
- Pre-construction Materials Engineer, UDOT, Salt Lake City, Utah, 1987 to 1988.
- Construction/Survey Technician, UDOT, Orem, Utah, 1984 to 1987.
- Retort Engineer, Geokinetics In Situ Oil Development, Vernal, Utah, 1984-1985.

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Course Information

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Use of software to depict engineering designs involving 2- and 3- D model development and topographic mapping.

Software and Hardware

For this course you can use a student license of the software. I would like you to try installing the AutoCad software on your laptops.

1. If you do not have a laptop, then don't worry, this does not apply to you. You can use the workstations provided by the University.
2. If you have a laptop, go to the following web site
<https://www.autodesk.com/education/free-software/autocad>
3. Note this site also indicates that there is a version of AutoCad for Macs but its user interface is very different from PC-based versions.

Software Overviews

Overview of AutoCADD

<https://www.youtube.com/channel/UCLFaiut3Z6IxD4NvkMt4qHQ>

Overview of AutoCADD Civil 3D

<https://www.youtube.com/watch?v=hOnOmpFgyPQ>

Academic Calendar

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General Calendar Dates

Event	Date
Class schedule available	Monday, September 23
Registration dates available	Monday, September 23
Registration dates begin	Thursday, November 7
Deadline to apply for graduation	Friday, January 17
Open enrollment	Monday, November 25
House Bill 60 registration	Monday, December 30
Tuition payment due	Friday, January 17
Census deadline	Monday, January 27
University Commencement & Convocation Exercises	Thurs.-Fri., May 1-2
College of Law Graduation Exercises	TBD
Grades due	Monday, May 12
School of Dentistry Graduation Exercises	TBD
School of Medicine Graduation Exercises	Friday, May 16

Semester Length Classes

Event	Date
Classes begin	Monday, January 6
Last day to add without a permission code	Friday, January 10
Last day to wait list	Friday, January 10
Last day to add, drop, audit, and elect CR/NC	Friday, January 17
Last day to withdraw from classes	Friday, February 28
Last day to reverse CR/NC option	Friday, April 18
Classes end	Tuesday, April 22
Reading Day	Wednesday, April 23
Final exam period	Thurs.-Wed., April 24-30

Holidays

Event	Date
Martin Luther King Jr. Day holiday	Monday, January 20
Presidents Day holiday	Monday, February 17
Spring break	Sun.-Sun., March 9-16

All deadlines take place on the listed date in Mountain Time.

Course Schedule

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<u>Contents</u>	<u>Homework Due Dates (11:59 pm)</u>	<u>Points</u>
L1 - Course Introduction, Drawings, Maps, and Sketches	Jan 13	50
L2- Hand Contouring Surfaces and Watersheds	Jan 21	100
L3 - LiDAR data, Maps, and DEMs	Jan 28	150
WB1 & 2 Basics of AutoCAD	Feb 4	100
L4 - Orthographic Projections in AutoCAD	Feb 11	100
L5 - Floor Plans in AutoCAD	Feb 18	100
L6 - Drawings from Ortho Photos in AutoCAD	Feb 25	100
Spring Break	Mar 3-7	-----
L7 & WB3 Contouring in Civil 3D	Mar 11	150
L8 & WB5 - Roadway Alignments in Civil 3D	Mar 18	100
L9 & WB6 - Roadway Profiles in Civil 3D	Mar 25	100
L10 & WB7 - Roadway Grades in Civil 3D	Apr 1	100
L11 & WB8 - Roadway Assemblies in Civil 3D	Apr 8	100
L12 & WB9 - Intersections in Civil 3D	Apr 15	100
L13 Hoogle Zoo Trail Assignment	Apr 22	100
Reading Day	Apr 23	

These dates are approximate, and the schedule may vary during the semester as modified by the instructor.

Attendance and Grading Policy

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Grading Criteria:

1. **Homework Drawings** (100%) – The assignments are done individually but you can request help from friends or the TA.

2. **Grades**

The grades will be based on the total score for the course using the following ranges

Grade Score (%)	Grade Score (%)
A (94-100)	A- (90-93)
B+ (87-89)	B (84-86)
B- (80-83)	C+ (77-79)
C (74-76)	C- (70-73)
D+ (67-69)	D (64-66)
D- (60-63)	E (< 60)

3. **Late policy on Drawings and Assignments** - 10% deduction (1st week), 30% deduction (2nd week), 50% deduction (3 week until end of semester).

Grading Methodology

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Grading will be based on the following criteria. Some of these may not apply to all assignments

- Title Block and Presentation
- Accuracy
- Drawn to scale (can be used to obtain measurements)
- Dimensioned (shows dimensions of objects and features)
- Clarity
- Completeness

CVEEN 1400				
Student name				
Assignment	Assignment 2 - Orthographic View			
Exemplary	Mature	Satisfactory	Developing	Beginning
Greatly exceeded expectations	Exceeded expectations	Met expectations	Partially met expectations, but deficient in important aspects	Significant improvement needed to meet expectations
No to minor mistakes. Significant additional quality above the minimal standard	Some minor mistakes, no significant conceptual mistakes. Additional quality above minimal standard	Some mistakes, including minor conceptual mistakes; however able to use generally accepted methods. Quality met the minimal standard.	Demonstrated some general knowledge of topic. Work included many mistakes, including conceptual mistakes. Quality was substandard.	No response or participation, or completely incorrect in response or participation.
score = 90 to 100	score = 80 to 89	score = 70 to 79	score = 60 to 69	less than 60
grade = A	grade = B	grade = C	grade = D	grade = E
Percentage > 90%	80 to 89%	70 to 79%	60 to 69%	< 60%
Comments				
Accuracy	Dimensions			
	Scale	No scale included on computer-drawn map (-3 points) Scale not easily seen (-2 points)		
Clarity	Completeness	Contour interval (hand drawn) incorrect (-3 points) Contour intervals not labeled on hand drawing map (-3 points) Contour intervals not labeled on computer drawn-map (-3 points) Contour labels not in same line (-2 points) Watershed not drawn correctly (-5 points) Profile line not included (-30 points) Profile line not drawing correctly (-15 points) Original elevations not shown on map (-5 points) 4000 elevation point not found on profile line (-3 points) Need horizontal scale on profile line (-3 points) Maximum elevation on profile line is about 3600 to 3800 m (-3)		
	Format	drawing is sloppy or not professional (-5 points)		
Other				

Academic Misconduct

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General Requirements:

1. Cheating on an examination (in-class or out-of-class exam) will result in an E for the course. **(There are no examinations for this CVEEN 1400)**
2. Cheating on a homework assignment will result in an E for the assignment.
3. Cheating more than once on a homework assignment will result in an E for the course.

Assignments:

1. If an assignment is labeled individual, then you must complete it alone without any assistance for your classmates. If an assignment is labeled team or group, you may complete it and submit it as a group. (For CVEEN 1400 all assignments, are done as individuals. If you submit someone else's drawing as your own, this constitutes cheating.)

Honor Pledge:

1. All assignments must have the following signed pledge at the front of the assignment:

On my honor as a student of the University of Utah, I have neither given nor received unauthorized aid on this assignment.

If the pledge is missing or is not signed, the assignment will receive a 10 percent reduction. By signing this pledge, you are certifying that the homework is your own work. This pledge may be handwritten and signed on the first page of the assignment. **(For CVEEN 1400, this pledge should be signed and included in the title block for drawings or placed on the cover page for a set of drawings.)**

Citation of Sources:

1. In writing assignments, you are encouraged to perform internet searches for information. However, you must attribute the source properly in your writing.
2. If you are directly using the information without modification, use the following format using quotation marks.

"A **civil engineer** is a person who practices civil engineering – the application of planning, designing, constructing, maintaining, and operating infrastructures while protecting the public and environmental health, as well as improving existing infrastructures that have been neglected. Civil engineering is one of the oldest engineering disciplines because it deals with constructed environment^[1] including planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, and water and sewage systems."

From <https://en.wikipedia.org/wiki/Civil_engineer>

3. If you are paraphrasing or summarizing the writing of others, then you must reference the work.

Youd and Bartlett (2002) believe that liquefaction-induced lateral spread is a major cause of earthquake damage.

References (put at end of paper or assignment)

Youd, T. L. and Bartlett, S.F. (2002). "Empirical Prediction of Liquefaction-Induced Lateral Spread," ASCE Journal of Geotechnical and Environmental Engineering, May, 2002.

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Academic Misconduct (continued)

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course syllabus. It is your responsibility to understand the definitions and consequences of academic misconduct.

i. Definition of Academic Misconduct

As defined in the Student Code, academic misconduct includes, but is not limited to, cheating, misrepresenting one's work, inappropriately collaborating, plagiarism, and fabrication or falsification of information. It also includes facilitating academic misconduct by intentionally helping or attempting to help another student to commit an act of academic misconduct. A primary example of academic misconduct would be submitting an assignment that has been copied from an unauthorized outside source such as a solution manual or another student's work. However, in this day of electronic gadgets, it is also important to note that other, less obvious, forms of cheating can occur. For example, an instructor has a rule banning cell phone usage during an exam. A student who is seen texting or even using their cell phone as a calculator could be perceived as committing academic misconduct. Another case may be were you work together on a spreadsheet assignment but rather than create your own individual document, you print out 4 copies of the same spreadsheet. Again, many instructors would consider this cheating. The consequences are severe. Know and follow your instructor's rules!

Detailed information of what is considered academic misconduct for a specific class is defined by the CVEEN course instructor and is found in the course syllabus. If a student has questions about the information contained in the syllabus, they should seek clarification from the instructor rather than rely on a third-party interpretation. An individual's academic misconduct is tracked by the CVEEN Department of all of its courses. Information regarding prior offenses is available to the Chair of the Undergraduate Committee, the Chair of the Graduate Committee, the CVEEN Chair, and CVEEN office staff. CVEEN course instructors will not have access to this information to avoid unfair scrutiny of previous academic misconduct offenders.

ii. Sanctions and Appeals

Two options apply when an instance of academic misconduct is discovered:

1. Fail-the-course Option

The default sanction for an academic misconduct offense is a failing grade for the course. Thus, unless explicitly stated in any CVEEN course syllabus, cheating means an E. This sanction will be placed in the student's departmental file and count as a full violation (1 point) towards permanent program dismissal.

2. Less than Fail-the-course Option

Academic Misconduct (continued)

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As defined in a specific CVEEN course syllabus, or **due to instructor discretion, an academic misconduct sanction may be relaxed from a failing course grade. In such cases, the individual will receive a zero for the particular assignment (homework, exam, paper, etc.).** The instructor will, however, turn in a record of the relaxed sanction that will be kept in the student's departmental file. This will count as a half violation (0.5 points) towards permanent program dismissal.

Regardless of the type of sanction, two (or more) violation points will result in immediate dismissal from the CVEEN program. Note that a failing grade sanction still applies even for students who subsequently withdraw from a course after a sanction has been imposed. Furthermore, those dismissed from the CVEEN program will not be allowed to transfer to any other engineering department within the College of Engineering as per COE policy.

Appeal of Sanction

Students are entitled to appeal academic misconduct sanctions if they disagree with an instructor's determination of the violation. Students are entitled within twenty (20) business days of notification of the academic action if they believe the sanction is arbitrary or capricious. Note that simply not understanding the policy is not grounds for appeal. Furthermore, disagreement over the severity of the infraction will not generally be grounds for appeal. Should a student need advice or guidance about their appeal, the CVEEN Chair of the Undergraduate Committee or the Chair of the Graduate Committee (as appropriate) can serve as an informal advisor. Students are encourage to seek such assistance. If a student's appeal is successful, the sanction will be removed from the students' departmental file.

The Academic Misconduct process including appeals involves a complex number of steps and procedures. Figure 1 illustrates this process. For more information on the appeals process, see the University of Utah Code of Students Rights and Responsibilities^[1] and the College of Engineering policy as defined in the Academic Appeals and misconduct Policy^[2].

^[1] <http://www.regulations.utah.edu/academics/6-400.html> Section IV. Student Academic Performance, Part B

^[2] <https://www.coe.utah.edu/appeals>

Academic Misconduct

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CVEEN Academic Misconduct Policy Statement University of Utah

Version: December 5, 2017

1. Background

The University of Utah defines academic misconduct as disreputable activities involving **cheating, plagiarizing, research conductivity, misrepresenting one's work, and inappropriate collaboration**. Definitions of these activities are presented in the Code of Students Rights and Responsibilities^[1] (the *Student Code*). This document describes the specific policies and procedures used by the Department of Civil and Environmental Engineering (CVEEN) relating to Academic Misconduct of any student enrolled in a CVEEN course (e.g., CVEEN 2010) or any course that is cross-listed with a CVEEN course. This policy is in effect starting July 1, 2018.

Civil and Environment Engineering is a profession **predicated on public trust and professional ethics**. At the heart of this trust is the **belief that engineers have developed technical expertise in their academic training and that they are able to employ these skills along with life-long learning opportunities to develop infrastructure projects that achieve design goals which also protect human life and safeguard the environment**. The American Society of Civil Engineers (ASCE) has adopted a stringent Code of Ethics^[2] to help ensure that these high standards are maintained. As a Department, our curriculum is designed to provide students with the technical skills necessary to become successful engineers. Academic misconduct results in students not fully mastering important concepts and thus threatens the integrity of our profession. It is the faculty's job to prepare our students to the best of our ability. Since we take our responsibility seriously, cheating of any kind will not be tolerated. Thus, if you cheat, the consequences will be severe. The rules are simple: work hard, maintain integrity, do not cheat, and don't allow others to cheat from your work.

2. CVEEN Policy on Academic Misconduct

While the pressure to receive the highest grades can be enormous, such pursuits must be done in accordance with rules governing individual performance and the integrity associated with the engineering profession. This document describes The Civil and Environmental Engineering departmental policy on academic misconduct that applies to any course listed as CVEEN XXXX (subsequently referred to as a CVEEN course) or any cross-listed course. There are two documents of note; this overall governance document and information contained in each CVEEN

^[1] <http://www.regulations.utah.edu/academics/6-400.html>

^[2] <http://www.asce.org/code-of-ethics/>

Other Important Information

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APPEALS PROCEDURES

See the [Code of Student Rights and Responsibilities](#), located in the [General Catalog](#).

Appeals of Grades and other Academic Actions

If a student believes that an academic action is arbitrary or capricious, they should discuss the action with the involved faculty member and attempt to resolve. If unable to resolve, the student may appeal the action in accordance with the following procedure:

1. Appeal to Department Chair (in writing) within 40 business days; chair must notify student of a decision within 15 days. If faculty member or student disagrees with decision, then,
2. Appeal to Academic Appeals Committee (see <https://www.price.utah.edu/students/academic-affairs/academic-appeals> for members of committee). See II Section D, Code of Student Rights and Responsibilities for details on Academic Appeals Committee hearings.

AMERICANS WITH DISABILITIES ACT (ADA)

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you need accommodations in a class, reasonable prior notice needs to be given to the instructor and to the Center for Disability & Access, 162 Olpin Union, 801-581-5020 (V/TDD) to make arrangements for accommodations. All written information in a course can be made available in alternative format with prior notification to the Center for Disability & Access.

Other Important Information (cont.)

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ADDING CLASSES-FULL TERM

Please read carefully: All classes must be added by the add/drop deadline: Friday, January 19, 2024. Late adds will be allowed January 22-26, requiring only the instructor's signature. Any request to add a class after the census deadline will require signatures from the instructor, department, and Dean, and need to be accompanied by a petition letter to the Dean's office.

A \$50 FEE WILL BE ASSESSED BY THE REGISTRAR'S OFFICE FOR ADDING CLASSES AFTER THE CENSUS DEADLINE ***

******Before you elect to take a class CR/NC you should check with your Advisor. Core classes used to compute your Engineering GPA need letter grades.**

REPEATING COURSES

When a Price College of Engineering class is taken more than once, only the grade for the second attempt is counted. Grades of **W, I, or V** on the student's record count as having taken the class. Departments enforce these guidelines for other courses as well (e.g., math, physics biology, chemistry). Attempts of courses taken at transfer institutions count as one attempt. This means a student may take the course only one time at the University of Utah. Courses taken at the University of Utah may not be taken a second time at another institution. If a second attempt is needed, it must be at the University of Utah. Please work with your department advisor to determine the value of repeating courses. Students should note that anyone who takes a required class twice and does not have a satisfactory grade the second time may not be able to graduate. It is the responsibility of the student to work with the department of their major to determine how this policy applies in extenuating circumstances.

WITHDRAWAL PROCEDURES

*For more, see the **Withdrawal Policy** and information on **Drop Deadlines** provided by the Office of the Registrar ***

Please note the difference between the terms "drop" and "withdraw". Drop implies that the student will not be held financially responsible, and a "W" will not be listed on the transcript. Withdraw means that a "W" will appear on the student's transcript and tuition will be charged. **

Drop Period for Full Term Classes- No Penalty

Students may DROP any class without penalty or permission up until Friday, January 19, 2024.

Withdrawal from Full Term Length Classes

Students may WITHDRAW from classes without petition until **Friday, March 1, 2024**. Beginning January 20 until March 1, a "W" will appear on the transcript AND **tuition will be charged**. Refer to Class Schedule, Tuition and Fees for tuition information.

Drop/Withdrawal from Session I & Session II

*Visit the **academic calendar** for more detail.*

Withdrawals for term length classes after March 1 will only be granted due to compelling, nonacademic emergencies. A petition and supporting documentation must be submitted to the Dean's Office, 1704 Warnock Engineering Building. Petitions must be received before the last day of classes (**April 23, 2024**).

Other Important Information (continued)

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IMPORTANT SAFETY INFORMATION

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-581-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu>

If you are experiencing interpersonal violence, sexual assault, domestic violence, and/or stalking, please connect with one of the resources below.

Resource	Phone #	Hours	Affiliation
McCluskey Center for Violence Prevention <i>Email checked daily: cvp@utah.edu</i>	801.587.3982	NA	University
Center for Campus Wellness, Victim Survivor Advocate	801.581.7776	8-5	University
Office of Equal Opportunity	801.581.8365	9-5	University
University Department of Public Safety	801.585.2677	24hrs	University
Crime Victim Advocate <i>For less urgent matters, email checked M-F 9-5: crimevictimsadvocates@utah.edu</i>	801.585.2677	24hrs	University
Huntsman Mental Health Institute	800.587.3000	24hrs	University
Utah Domestic Violence Coalition	800.897.5465	24hrs	State
Rape Recovery Center	801.467.7282	(M-Th) 9-5	State
Utah Coalition Against Sexual Assault 24hr Crisis Line	800.897.5465	24hrs	State
Stalking Helpline	800.621.4673	24hrs	State

Mandatory reporters are university employees, including students in paid leadership positions who are required to report sexual misconduct to the Office of Equal Opportunity and Affirmative Action per university regulations. Examples of mandatory reporters include:

- * Professors and other faculty
- * Administration and staff (non-mental health)
- * Resident Advisors
- * Student employees
- * Campus Police or Campus Security officials
- * Athletic Coaches/Assistants

Blank

Sunday, January 7, 2024 1:48 PM