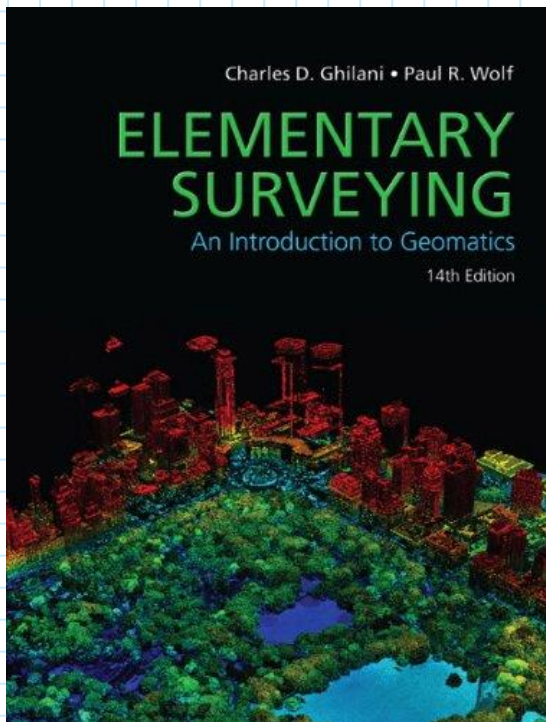# Course Information

Course Description

Introduction to principles of measurement science, geometry of spatial measurement, spatial data, reference systems and datums, coordinate systems, surveying principles and instrumentation, interpretation of maps and plans in three dimensions, surveying software, spreadsheets, introduction to fields of Geomatics and Geographic Information Systems (GIS).

From <https://catalog.utah.edu/#/courses/BkE78WH7E?bc=true&bcCurrent=Geomatics&bcItemType=Courses>

Course:

Th. 5:00 - 7:30 p.m. UAC 509

Textbook:

Elementary Surveying an Introduction to Geomatics (14th Edition)
Ghilani, Charles D.; Wolf, Paul R.

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Topics

1. Introduction
2. Units and Significant Figures
3. Field Notes
4. Theory of Errors in Observations
5. **Leveling - Theory, Methods and Equipment***
6. Distant Measurements
7. Angles, Azimuths and Bearings
8. **Total Station Instruments and Angle Observations**
9. **Traversing**
10. Traversing Computations
11. Coordinate Geometry in Survey Calculations
12. Area
13. **GPS Introduction and Principles**
14. Adjustments by Least Squares
15. Mapping and Mapping Surveys
16. Construction Surveys
17. **Vertical and Horizontal Curves and Volumes**
18. **Terrain Modeling Using UAVs (Unmanned Aerial Vehicles)**
19. **3D Building Modeling**
20. **LiDAR**

It is possible that some of these topics will not be covered this semester. Topics requiring field work with survey equipment are in **bold***.

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UNIVERSITY OF UTAH ASIA CAMPUS | 2021-2022 CALENDAR

Holidays/School Closed   First and Last Day of Semesters   Finals Week

JULY 2021

1	Last day to add, drop, audit elect CR/NC
8	Summer tuition due
16	Last day to withdraw from summer classes
17	Constitution Day

S	M	T	W	Th	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JANUARY 2022

3-7	UAC Closed
19	Early spring session Classes begin
24	Last day to add without a permission code
28	Last day to withdraw from classes
31	Lunar New Year

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30	31					

AUGUST 2021

4	Summer classes end
5-6	Summer final exam period
16	Liberation Day (obs)
19-20	Fall Orientation & Registration
23	Fall Semester Classes Begin
27	Last day to add without a permission code

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22	23	24	25	26	27	28
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FEBRUARY 2022

1-2	Lunar New Year
11	Early spring session classes end
17-18	Spring Orientation
21	Spring Semester Classes begin
25	Last day to add without a permission code
28	Reading Day

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SEPTEMBER 2021

3	Last day to add, drop, audit, and elect CR/NR
10	Fall tuition payment due
20-22	Mid-Harvest Festival

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MARCH 2022

1	Independence Movement Day
4	Last day to add, drop, audit, and elect CR/NR
11	Tuition payment due
30-31	Spring Recess

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OCTOBER 2021

4	National Foundation Day (obs)
9	Hangeul Day (obs)
8	Last day to withdraw from class
26	Spring classes available
31	Halloween

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APRIL 2022

1	Spring Recess
8	Last day to withdraw from classes
12	Summer classes available
26	Summer Registration begin

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NOVEMBER 2021

16	Spring Registration begin
25-26	U.S. Thanksgiving
26	Last day to reverse CR/NR option

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MAY 2022

1	Labor Day
5	Children's Day
6	Reading Day
9	Buddha's Birthday (obs)
10	Fall classes available
24	Fall registration begins
27	Last day to reverse CR/NR option

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DECEMBER 2021

3	Fall classes end
6-9	Fall final exam period
20-31	UAC Closed
25	Christmas Day

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JUNE 2022

3	Spring Classes End
6	Memorial Day
7-10	Spring final exam period
23	Summer Classes begin
28	Last day to add, drop, audit elect CR/NC

S	M	T	W	Th	F	S
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Steven F. Bartlett, 2022

Instructor

Associate Chair, Department of Civil and Environmental Engineering,
Asia Campus, S. Korea
#1016, Guest House, Songdomunhwaro 119, Yeonsu-gu, Incheon, Korea, 21985
인천시 연수구 송도문화로 119, 게스트하우스 1016호

우편번호: 21985

Associate Professor, Department of Civil and Environmental Engineering, University of Utah
106 S. Central Campus Dr., MCE Bldg., Salt Lake City, UT 84112
Phone: (435)841 9837, email: bartlett@civil.utah.edu
Website portfolio: https://www.softgroundassociates.com/

Career Objectives

- Reduce seismic vulnerability of the built environment through hazard and risk assessment, design, mitigation and seismic retrofitting.
- Provide rapid construction solutions for infrastructure and transportation needs.
- 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 present.
- 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.

Instructor Schedule and Office Hours

Open Office Policy

You can visit me anytime if my door is open. Otherwise request an appointment at bartlett@civil.utah.edu

Office Hours 8:30 - 9:45 a.m. Monday and Wednesday, Rm U747

Course Grading Policy

Grading Criteria:

1. **Homework and Group Assignments (**60%) – The homework assignments are generally done individually. The group assignments will be labs and field work.
2. **Exams and Quizzes** - (20%)
3. **Attendance** (20%) – Attendance in class is mandatory. The University expects regular attendance at all class meetings. Students are responsible for acquainting themselves with and satisfying the entire range of academic objectives and requirements as defined by the instructor.

Excused Absences
For a student to receive an official excused absence, they must complete a request form in the Office of the Dean of Students and provide any accompanying documentation with the request. If their request is approved, the Dean of Students will email all appropriate faculty with this notification.

Personal Days

You are granted two unexcused absences (personal days) during the year that can be used without the instructor or the Dean of Students' permission. These personal days may be used as sick days, work or other personal matters.

Unexcused Absences

This course has a significant laboratory/field component and it is important that you attend class. Unexcused absences beyond these two personal days will result in a 4 percent decrease in your grade for each absence up to a maximum of 20 percent of your grade.

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Grading Criteria (continued)

Grading of Course Total Course:

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)

Academic Misconduct

1. Cheating on an examination (in-class or out-of-class exam) will result in an E for the course.
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.

Citation of Sources:

1. If an assignment is labelled <u>individual</u>, then you must complete it alone without any assistance for your class mates. If an assignment is labelled <u>team</u> or <u>group</u>, you may complete it and submit it as a group.
2. In writing assignments, you are encourage to perform internet searches for information. However, you must attribute the source properly in your writing.
   a. 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>

   b. 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.

   <u>References</u> (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.

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

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].

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[1] http://www.regulations.utah.edu/academics/6-400.html   Section IV. Student Academic Performance, Part B
[2] https://www.coe.utah.edu/appeals

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

:

1. ***The Americans with Disabilities Act***. The University of Utah Asia Campus seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the UAC Office of the Dean of Students, 804 Utah Building, 032-626-6002. The UAC Office of the Dean of Students will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the UAC Office of the Dean of Students.

2. ***Addressing Sexual Misconduct.*** Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the UAC Office of the Dean of Students, 804 Utah Building, 032-626-6002. For support and confidential consultation, contact the UAC Mental Health Counseling, 3052 Multi-complex Building, 032-626-6142.

3. ***Student Code of Conduct***. All students are expected to maintain professional behavior in the classroom setting as outlined in the Code of Student Rights and Responsibilities, Policy 6-400 of the University Regulations Library (http://www.regulations.utah.edu/academics/6-400.html).

4. ***Wellness Statement.*** Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah Asia Campus. For helpful resources, contact the UAC Mental Health Counseling Center; asiacampus.utah.edu/mental-health-counseling-center/; 032-626-6142.

5. **Language Policy.** The University of Utah Asia campus is committed to providing and fostering an environment that is safe and free from prohibited discrimination. The following language policy applies to all academic and administrative units of the University and to all members of the University community, including faculty, staff, and students. English is recognized as the official language of instruction, assessment, and curriculum. In addition, English is the official language for all administrative and business related matters of the University.

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