

CEE 121 ELEMENTARY SURVEYING

University of Nevada, Las Vegas
Howard R. Hughes College of Engineering
Civil & Environmental Engineering & Construction
Summer 2022

Course Information:

Semester: Summer 2022 (June 6, 2022, to August 10, 2022)

Lecture Day: Monday and Wednesday.

Lecture Time: 6:00 p.m. – 7:30 p.m.

Mode of Lecture: In -Person

Class Room: TBE B-176

Credit Hours: 2

Fall 2021- Summer 2022 Undergraduate Catalog Description:

Vertical and horizontal control methods: topographic and construction surveys, use of land survey equipment, note taking and graphical communication. Applications to earthwork and highway alignment.

Pre-requisites/Co-requisites by Topic:

MATH 127 or MATH 128 (Co-requisites) or SAT 630 or higher OR ACT math score of 28 or higher.

Course Format:

This course will be conducted in a lecture & laboratory format. Both lectures and labs will be in-person.

Course Requirements:

Students will engage in the following activities:

- Attend theory class
- Read assigned material prior to class sessions
- Participate in class discussions
- Complete Quizzes and Homeworks
- Complete Lab Works
- Complete a Theory Mid-term Exam.
- Complete a Theory Final Exam

Course Topics:

The topics to be covered in this course are:

1. Field Data
2. Angles, Distances, and Trigonometry
3. Level (e.g., differential, elevations, percent grades)

4. Closure
5. Areas Computations
6. Coordinate Systems (e.g., GPS, State Plane, NAD83)
7. GPS (importing and exporting data)

Course Objectives:

Students will develop competencies in:

- Know how to setup a tripod over a monument
- Know how to measure distances using a steel tape/chain, pacing, total station and GPS
- Know how to measure/derive elevations/heights using an automatic level, total station and GPS. Perform level loop/circuit analysis
- Know how to measure horizontal and vertical angles using a total station. Perform closure adjustments to closed traverses using the Compass (Bowditch)
- Rule/Method
- Understand Projects Transverse Mercator), Datums (NAVD 88, NAV 83, WGS 84), Geoid, Ellipsoid, Orthometric Heights, Geographic Coordinate Systems, State Plan Coordinate Systems
- Create CAD drawings using filed measurement data showing angles, bearings, and distances, area, existing and proposed TIN surface, and coordinates. Also create topographic maps showing elevation contours.
- Earthwork calculations, determine the volume between the existing and proposed surface.

Required and/or Recommended Books and Materials:

Text Book: **Elementary Surveying: An Introduction to Geomatics, 15th Edition** by Charles D. Ghilani, ISBN 10: 0-460465-2-0; ISBN 13: 978-0-460465-7, © 2018 by Pearson Education, New York, New York.

Homework Policy:

Homework assignments and Lab assignments are due at the time and day mentioned in the Homework and Lab assignment sheets. Unless prearranged, any homework and Lab work turned late (within 24 hours of due date) will be subject to a 50% penalty. Homework and labworks submitted after 24 hours of due date will not be accepted.

Class Attendance Policy:

The class attendance is mandatory and the students who missed more than 5 classes will be assigned F grade. The following is directly quoted from the 2021-2022 University Undergraduate Catalog: <https://catalog.unlv.edu/content.php?catoid=32&navoid=8271>

“Class Attendance Policy: Registration in a class obligates the student to be regular and punctual in class attendance. Students who without previous arrangement with the

instructor or department fail to attend the first two class meetings of a course that meets multiple times per week or the first meeting of a class that meets one time per week may be dropped from the course. Nonattendance for a web-based course shall be defined as failure to log onto Canvas or other instructor-designed website within one week of the course start date without previous arrangements with the instructor or department. Nonattendance does not release the student from the responsibility to officially drop any course for which they have enrolled and choose not to complete, nor from financial obligation to pay for the course.

Missed Classwork:

There are no official absences from any university class. It is the student's responsibility to consult with the course instructor regarding absences from their class. Students may be dropped from classes for nonattendance during the first week of instruction.

It is the policy of the Nevada System of Higher Education to be sensitive to the religious obligations of its students. Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The makeup will apply to the religious-holiday absence only. It shall be the responsibility of the student to notify the instructor within the first 14 calendar days of the semester of his or her intention to participate in religious holidays that do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university that could not reasonably have been avoided.

Any student who is denied a make-up option after appropriately notifying the instructor, shall have the right to appeal that decision through the normal appeal mechanism in place.”

Assignment Weights:

- 1st Mid Term Exam: 125 points
- Final Exam: 125 points
- Homeworks – 5 @ 20 Points: 100 points
- Lab Assignments 4 @ 25 Points: 75 points
- Theory Quizzes – 5 (4 @ 12.5 Points): 50 points
- Attendance: 25 points
- Total: 500 Points

Homework Assignments and its Due Dates and Exam Dates (Refer to the schedule in the last page)

Theory Quizzes will be either online in Canvas or in classroom and you will be given 10 minutes to complete the quizzes. All the quizzes will start at 6 pm and ends at 6:10 pm.

Extra Credit Assignment Options:

Professor, at his sole discretion, may provide students with an opportunity to complete extra credit test or assignments.

Homework:

Homework will be due at the specified time and date. Assignments could be submitted before the due date. All problem-solving/computation homework will be done in *“engineer’s computation paper”* and submitted via email by scanning the engineering sheets. Assignments with spelling, grammatical, or mechanical errors—or with obvious erasures, cramped margins, coffee stains, etc.—will be downgraded

Communication Skills:

Communication skills are paramount to a successful career. Therefore, communication skills, written and oral, will be evaluated in all coursework. Lengthy and major assignments involving significant writing will have writing as 30 percent of their evaluation criteria. The laboratory part of this course will include the report writing. To get more help about writing you may access at: <http://writingcenter.unlv.edu/>

Examinations:

Examinations will be closed books and closed notes. Missed examinations will count as zero if prior authorization is not granted. The honor system is observed. Make-up examinations will be given under **extraordinary** circumstances only. No make-up examinations will be given beyond one week (7 days) after the original exam date regardless of reason. Make-up examinations will cover material similar to the original exam, but may be of a different format and different composition of types of questions.

Grading Scale:

Letter Grade	Score Range	Subjective Criteria	Range
A	90% - 100%	Superior knowledge	Acceptable
B+	87% - < 90%	Good knowledge	Acceptable
B	80% - < 87%	Good knowledge	Acceptable
C+	77% - < 80%	Average knowledge	Acceptable
C	74% - < 77%	Met minimum knowledge standards	Marginally Acceptable
C-	70% - < 74%	Did not meet standards	Unacceptable
D	60% - < 70%	Did not meet standards	Unacceptable
F	Below 60%	Did not meet standards	Unacceptable

Other Pertinent Information

Date, Time, and Location of Final Examination: Wednesday, August 10, 2022, 6:00 p.m. to 8:00 p.m.

Faculty Titles: Students are to address faculty members in a professional manner with their appropriate title. If the individual holds the Doctor of Philosophy degree (Ph.D.), Doctor of Engineering (D.Eng.), Doctor of Science (Sc.D.), Doctor of Education (Ed.D.) or other doctoral degree and is instructing your class you may address them as Dr. (surname) or Professor (surname) depending on that faculty member's preference. In all other cases the faculty member shall be addressed as Professor (surname). Do not address a faculty member as Mr., Mrs., or Ms. as that does not convey your acknowledgement of the faculty member's professional relationship to you. Under no circumstances are you to address the faculty member in a familiar manner using their first name, nickname, or just their surname.

Respect for Faculty Time: Faculty have myriad responsibilities ranging far beyond this course within the university environment. The Construction Management Faculty will be accommodating as reasonably possible. Most faculty spend considerably more time on a course per week than does the individual student. It is not reasonable to expect that a faculty member will take on the role of a tutor nor will he/she.

Virtual Office Hours:

Disclaimer: The contents of this document are to be considered "tentative" and subject to change as the instructor deems necessary.

Attachments:

1. Weekly schedule
2. Reading assignments

University Policies

Public Health Directives

Face coverings are currently mandatory for all faculty and students in the classroom. Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at [Health Requirements for Returning to Campus](https://www.unlv.edu/coronavirus/health-requirements), <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Student Conduct Code](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students

accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the [Student Conduct Code](https://www.unlv.edu/studentconduct/student-conduct), <https://www.unlv.edu/studentconduct/student-conduct>.

Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of devices such as cellular phones and pagers, or other potentially disruptive activities are only permitted with the prior explicit consent of the instructor. Students are specifically prohibited to record classes without instructor authorization, including online/remote classes (either audio only, or video and audio). The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Since the COVID-19 pandemic forced some instruction to be delivered remotely starting in Spring 2020, numerous students have asked instructors to record their synchronous classes, so that they can access them at their convenience. Instructors who agree to record their classes (audio only, or video and audio) should inform students in advance. Recorded lectures may not be broadly released to anyone, but made available exclusively to those students enrolled in the class during the particular academic term. Recorded lectures must be stored securely, and are subject to the Nevada System of Higher Education's Records Retention Policy, meaning that the recordings can only be deleted 120 days after the end of class (i.e., after grades are posted). Once this requirement is met, the recordings should be deleted. Class recordings are protected from disclosure, as they are deemed part of an educational record under the Family Educational Rights and Privacy Act (FERPA).

Copyright

The University requires all members of the University Community to familiarize

themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for student or employee violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional [copyright policy information](#) is available at <https://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)

The [UNLV Disability Resource Center](#) (Student Services Complex, SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to a permanent disability, temporary or permanent medical need, or academic support due to pregnancy are encouraged to contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. Students who are already registered with the DRC should request their accommodations online each semester, and make an appointment to discuss their accommodations with their instructors.

Final Examinations

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the [Final Exam Schedule](#), <https://www.unlv.edu/registrar/calendars>.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](#), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the [Acceptable Use of Computing and Information Technology Resources Policy](#), <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology->

resources-policy, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

Incomplete Grades

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the [Academic Policies](#) webpage.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed

class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate’s policy, and an infringement on the student’s right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV’s official email system for students and by University policy, instructors and staff should only send emails to students’ Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Sending emails within WebCampus-Canvas is also acceptable.

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3–301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

Course Schedule & Assignment

Date	Class	Topics	Readings	HW Schedule
M, 6/06	1	Lecture: Introduction, units, significant figures, field notes,	Chapters 1 and 2	Assign HW 1
W, 6/08	2	Lecture: Errors in observations, and distance measurements, and surveys of public lands	Chapters 3 and 6	
M, 6/13	L1	Field Lab 1	Pacing & Chaining	
W, 6/15	L2	Field Lab 2	Wire, Stadia Distance	
M, 6/20	3	Lecture: Leveling,	Chapter 4	Quiz # 1 (6:00 pm to 6:15 pm)/ Due HW 1
W, 6/22	4	Lecture: Leveling,	Chapter 5	Assign HW 2
M, 6/27	L3	Field Lab 3	Profile Leveling	
W, 6/29	L4	Field Lab 4	Total Station Setup	
M, 7/04	5	Recess		
W, 7/06	6	Lecture: Angles, and Azimuths, and Bearings,	Chapters 7 and 8	Quiz # 2/ Due HW 2
M, 7/11	7	Lecture: Total Stations, Traverse, and Traverse Computations/ Review of Mid Term Exam	Chapters 9 and 10	Assign HW 3
W, 7/13	8	Mid Term Exam	Chapters 1- 6	
M, 7/18	L5	Field Lab 5	Traverse with Total Station	Quiz # 3/ Assign Lab 3
W, 7/20	L6	Field Lab 6	Inaccessible Point Lab	
M, 7/25	9	Lecture: Horizontal curves/	Chapter 24	Due HW3/ Assign HW 4
W, 7/27	10	Lecture: Areas and Volumes	Chapters 12 and 16	Assign HW 5
M, 8/01	L7	Field Lab 7	Foundation Lab	
W, 8/03	L8	Field Lab 8	Horizontal Curves	
M, 8/08	11	Lecture: Review of Final Exam	Chapter 12 and 16	Quiz # 4/ Due HW 4 and 5
W, 8/10	12	Final Exam (6:00 pm to 8:00 pm)	Chapter 7, 8, 9, 10, 12, 16, and 24	