



Soules College of Business
Department of Technology
Applied Geodesy
TECH 4342
Course Syllabus

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Office: Online
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Time:
Spring 2025
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Course Description

This course will cover advanced GPS/GNSS concepts including the history of GPS, how GPS works, the best practices for using GPS for land surveying applications, and recent advancements for GNSS technology. The primary focus of this course is for GPS in connection with land surveying.

Lecture Notes

Follow Power Point presentations in Canvas.

Textbook (Required): GPS and GNSS for Land Surveyors, 5th Edition by Jan Van Sickle
ISBN-13: 978-1032521022

Course Objectives

1. Learn about GPS signals and why they are critical
2. Become familiar with the different biases and the solutions for them
3. Understand technology that brought about modern GPS
4. Review the receivers and methods used to collect data
5. Understand the basic concepts regarding coordinate systems and how that impacts GPS
6. Become familiar with Static GPS
7. Learn about Real Time GPS solutions and practices
8. Learn about the types of satellites and the new signals and systems

Student Learning Outcomes

1. Explain how to use applied Geodesy
2. Demonstrate a comprehensive knowledge of Geodesic principles.
3. Describe an understanding of practical Geodesy.
4. Illustrate a fundamental knowledge of Geodesy.

Core Competencies

1. Computer-Based Skills – the student will complete written assignments using the word processor.

2. Communication Skills – the student will exhibit a mastery of both written and oral skills in completion and presentation of the assigned group projects.
3. Interpersonal Skills – the student will interact in class discussion regarding Geodesy
4. Problem Solving (Critical Thinking) – the student will use conceptual thinking to analyze and make determinations regarding the use of Geodesy
5. Ethical Issues in Decision Making and Behavior- the student will gain an appreciation of the ethics of technology through examination of various applications of Geodesy
6. Personal Accountability for Achievement – the student will complete the projects at the time designated by the instructor.
7. Competence in Technology Principles
 - a. Competence in major field and grounding in other major technology major core areas – the student will gain knowledge and skills related to Geodesy
 - b. Exposure to and appreciation for industrial experiences such as industrial tours, work-study options and cooperative education, senior seminars – The student will be able to attend field trips to various industries in the area.

Course Requirements:

Essay	15
Quiz 1	15
Quiz 2	15
Quiz 3	15
Final Exam	40

Total Points	100
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Essay. Each student must complete an essay this semester. The essay must have a minimum length of 3 pages double spaced. Page length does not include optional cover page, or the works cited page. The essay may cover any GPS/GNSS topic. The essay must be double spaced with 1-inch margins and have Times New Romans 12-point font. Paragraphs should have between 4 and 8 sentences, and the sentences should be complete. The essay due date is provided in the course schedule found below. The essay will be graded subject to the following penalties. Penalties will be assessed off the top of the allowed grade before any other grading is tallied. If all three of the penalties are assessed, the paper will receive a grade of zero. Credit will only be given for the writings of the student. Copying the work of others will not be tolerated, and the grade will be adjusted accordingly.

1. 20% penalty if any paragraph contains more than 10 sentences.
2. 20-100% penalty for any essay shorter than 3 pages.
3. 100% penalty if the essay is not a topic relating to the topics of this course.
4. 40-100% penalty for any essay that has more than a 20% similarity score.

The essay shall include the following information at the top of the first page unless a

cover page is used:

First & Last name of student

Course Name and Number

Date

Use of Canvas. Please use your UTT email ID and password access Canvas. All class notes will be posted on Canvas for students to review. It is the students' responsibility to regularly check Canvas for assignments. Due to the nature of this course, students should check Canvas every day for announcements and discussion posts. It is the student's responsibility to read all the correspondence and keep up with the due dates and deliverables for this course. The key to successful completion of this course, or any online course, is organization. This course is not a self-paced course and requires constant use of Canvas. Please keep up with all communications and deadlines, as deadlines exist because the course is offered within the UT Tyler course schedule and so that students can complete the course successfully in a timely manner.

Grade Scale Breakdown:

A=87-90 - 100%

B=77-80 - 89%

C=67-70 - 79%

D=57-60 - 69%

F=BELOW 60%

Course Policies:

Content for examinations will be taken from lectures, demonstrations, reading assignments, laboratory exercises and any audio-visual materials used, i.e. films, tapes, slides, etc.

Make up examinations are the student's responsibility. No excuses will be accepted after the exam is given. The instructor must be notified **prior** to the scheduled exam. If not, the student forfeits his/her right to take the exam. Quizzes will not be made unless a **prior** acceptable excuse for an absence has been received by the instructor.

Attendance:

Attendance is mandatory and will be taken at every scheduled class and laboratory period. No make-up unless:

1. Organized university trip.
2. Illness or death in **immediate** family (mother, father, brother and/or sister).
3. Illness of student.

Each one of these will require either a **doctor's statement** or a **signed** statement from the individual in charge of the trip.

A student will lose a letter grade in the course each time s/he is absent or late 3 times. Any student entering the classroom 1 second after the scheduled starting time will be considered late unless accompanied with a valid excuse.

Note: This is an online class.

Late Work:

All work not turned in on time will have an automatic reduction in value to 50% of its full value. **Work that is not turned in by the next class will NOT be accepted.** Exceptions to this will be as per University Policy concerning absences from class. If you know an assignment will be late for a valid reason, inform your instructor in advance to avoid unnecessary penalty.

Format for Reports:

Each laboratory report will be placed in a folder, arranged in such that the reader can easily examine the contents. Any materials that are hard to read or require special handling to get at will not be graded. The cover must contain the following:

1. Assignment Title in **BOLD** letters and the number of the chapter.
2. Prepared by: Your Name Here
3. Submitted to Dr. Mark Miller in partial fulfillment of the course
4. Course Name, TECH 4323 Lean Production
5. The Date

Your grade will reflect the quality of the presentation.

Cell Phones:

Cell phones are to be seen and not heard. Make sure you turn off your cell phone during class or turn it to the vibrator mode. A ringing cell phone is a distraction and is inappropriate for the classroom. Allowing your cell phone to ring and then answering it is very rude. It is not fair to your fellow classmates who have paid for this course. **Please be considerate and make sure your cell phone is turned off during any of your classes. Students will be asked to leave for the day if this behavior continues.**

Discrimination:

The policy of this department is to make your college experience as pleasant as possible. However, if at any time you feel that you are being discriminated against, belittled, or not treated appropriately, please notify the instructor either anonymously or in-person **immediately** after class. It is not the intention of any of the faculty in this department to make your college experience an unpleasant one. Remember, the first step in the process is to inform the instructor so s/he can be made aware of the problem and take corrective action. If the problem continues to persist, please inform the chair of the department. The dean can then be notified if the problem continues to exist after a few days. A grievance can then be filed in the Office of Student Services if there has still been no change in the instructor's behavior. **It should be noted that filing a grievance is a serious act and should NOT be done so just because you received a bad grade on an exam or in the course. Communication is an effective tool to solve problems and is rarely**

used enough. Most people are not deliberately trying to upset you, they are just not aware of your vantage point.

Talking:

While the instructor is talking, it is understood that no one should be talking. Students talking in class prevent other students from hearing the instructor and learning the material that is required to pass the course. If you are caught talking then you will **earn a zero on your daily quiz** grade. On the second offense, **you will be asked to leave**. This behavior is rude and disruptive and most students who talk in class typically earn lower grades. It should be noted, that students who have been granted permission to talk by the instructor should not be interrupted as well.

Offensive Language:

Any type of offensive language will not be tolerated in the classroom or laboratory. How you speak to your friends outside the classroom is your business, however, when you are in the classroom you must follow the University of Texas rules of conduct. **You will be asked to leave if your language or conduct is offensive.**

Required Activities Scheduled Outside of Regularly-Scheduled Class time (fees, tickets, procedures and/or forms required):

Read textbook, review notes, and complete assignments.

Department Website:

Commencement:

Holidays:

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. (For Fall, the Census Date is Sept. 12.) Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar. Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date (Sept. 12th) is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible a disability diagnosis such as a chronic disease, learning disorder, head injury or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are

encouraged to contact the Student Accessibility and Resources office and schedule an interview with an Accessibility Case Manager. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR webpage (<http://www.uttyler.edu/disabilityservices/>) or the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to saroffice@uttyler.edu.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester. Revised 09/16

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;

- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

ii. “Plagiarism” includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.

iii. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

iv. All written work that is submitted will be subject to review by SafeAssign™, available on Blackboard.

UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.

Lecture/Laboratory Materials:

Students will be required to provide the following:

1. 3 - Scantrons (Exam type) #882-ES
2. Textbook, notebook, and paper to take notes
- *3. Lecture notes packet (available online on the Blackboard website)
4. Pen and pencil
5. ASTM or OSHA approved safety glasses & Hearing protection

Note: Online class.

Tentative Schedule

Course Schedule

Module 1: January 16 – January 29

Assigned Reading: Chapter 1 of GPS for Land Surveyors

Topic: Introduction to GPS, and The History of GPS and GPS Signals

Census Date January 29

Module 2: January 30 – February 12

Assigned Reading: Chapter 2 of GPS for Land Surveyors

Topic: Biases & Solutions: A look at sources of errors and ways to overcome them

Quiz 1 (covering Modules 1 & 2) is due at 11:59 pm on February 19

Module 3: February 13 – February 26

Assigned Reading: Chapter 3 of GPS for Land Surveyors

Topic: Framework—A look at the forerunner to GPS and the current system today

Module 4: February 27 – March 10

Assigned Reading: Chapter 4 of GPS for Land Surveyors

Topic: GPS Receivers and Methods

Spring Break March 11- 17

Quiz 2 (covering Modules 3 & 4) is due at 11:59 pm on March 21

Module 5: March 18 – March 31

Assigned Reading: Chapter 5 of GPS for Land Surveyors

Topic: Coordinates

Module 6: April 1 – April 14

Assigned Reading: Chapter 6 of GPS for Land Surveyors

Topic: Surveying with Static GPS

Quiz 3 (covering Modules 5 & 6) is due at 11:59 pm on April 20

Module 7: April 15 – April 28

Assigned Reading: Chapter 7 & 8 of GPS for Land Surveyors

Topic: Surveying with RTK GPS & GPS modernization

No quiz for Module 7

Final Exam April 29 - 30

Multiple Choice and True/False – Online – Covering Modules 1 – 7

The essay is due at 11:59 pm on April 28

Module lectures and course material will remain available for the duration of the course.

Note: The instructor reserves the right to amend the syllabus including revising assignments, tentative schedule and evaluation as necessary.