



PHY 105 Physical Science by Inquiry

Edward Tyler Young

UNITED TRIBES TECHNICAL COLLEGE

COURSE INFORMATION

This course is an in-depth inquiry based exploration of basic principles of physical science and scientific methods that are often taught in elementary school. The focus will be on properties of matter, light and color, electric circuits, kinematics, and astronomy. This course is intended for non-science majors.

Credits: 3

Pre/Corequisites:

- Prerequisite: MTH 102
- Corequisite: LAB 105

CLASS INFORMATION

Section Number: A

Term: Spring Year: 2025 Start Date: 1/12/2025 End Date: 5/2/2025

Meeting Times: MW 10:00-11:20AM in Sci Tech 205

Delivery Mode: Face to Face

INSTRUCTOR

Edward Tyler Young

Email: eyoung@uttc.edu

Office Phone: (701) 221-1366

Office Location: Main Education Bldg. 216

Office Hours:

See course homepage for schedule

TEXTBOOKS

Hewitt, P.G., (2016). *Conceptual Physical Science*. (6th ed.) Pearson Publishing.

SUPPLIES

- Scientific or graphing calculator

COURSE OBJECTIVES

1. Explain various physical science concepts and principles.
2. Apply the various physical science concepts to practical experiences.
3. Summarize the scientific method and its applications.

4. Analyze problems related to simple motion, heat, temperature, energy, sound, and light.
5. Explain the origin, structure and motions of the solar system, galaxy and universe.

GRADING INFORMATION

Exit Tickets	10%
Weekly Homework	50%
Exams	40%

Exit Tickets

Exit tickets are brief assignments given at the end of each class meeting and due before the student leaves class. They consist of questions designed to assess a student's understanding of the content covered during that class. **These are graded for participation only** and are intended to let both the student and instructor know what material may need to be reviewed.

Weekly Homework

Weekly Homework will be assigned to cover each week's topic(s) as indicated in the Course Calendar. These assignments will typically open at the start of the first class during that week and be due prior to the first class of the following week. Students are encouraged to start these assignments right away and utilize the instructor's office hours to get help. *Class time will not generally be used for homework help.* Grades and feedback will be given to the students within a week of the assignment's due date. **Note:** Homework is not assigned during weeks where an exam is scheduled. During this week, a student may elect to correct and re-submit **one** homework assignment from a prior week included in the thematic unit for the upcoming exam. **Corrected questions will be graded at half their point value** (i.e., if a student originally scored a 70% on an assignment, they can score a maximum of 85% on the corrected assignment). Students must notify the instructor at the beginning of the exam week to get approval for re-submitting an assignment.

Exams

Exams occur throughout the semester (see course schedule) and are intended to assess a student's comprehension of a thematic unit before continuing to the next. These will occur in class and be closed book/notes, though the instructor will provide reference sheets as necessary (e.g., conversion factors). A student can elect to re-take any exam other than the final exam for a re-grade; these will be done outside of class, typically during the instructor's office hours, and must be arranged in advance. **Note:** this re-grade opportunity is intended to give students a chance to go back and revisit course material they may have struggled with when it was covered in class, but students should make every effort to succeed the first time an exam is offered. Towards that end, a student may only re-take any given exam once.

A. GRADING SCALE

Grade	Percentage
A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

B. COMMUNICATION

Email is the official means of communication at UTTC. Information Technology (IT) will assign all students an official UTTC email address. All correspondence from the College to the student will be sent to the student's UTTC email address. Students are expected to check their email regularly and are responsible for all information sent to them via their UTTC email address. Faculty expect students to use their official email address for all instructional purposes, including communicating with the faculty.

C. ATTENDANCE

Students at UTTC are expected to participate in all of their class sessions and are expected to communicate with their instructors regarding any emergencies that cause them to miss class. Regardless of the circumstances, the student is responsible for obtaining any information missed because of the absence and completing any outstanding assignments. The student may refer to the course assignments in My.UTTC.edu, contact another student enrolled in the course, or meet with the course instructor during office hours to get the missing information. Attendance is entered as "Present", "Absent-Unexcused", or "Excused" (college-sanctioned absences).

D. LATE ASSIGNMENT SUBMISSIONS

UTTC supports and fosters the student's responsibility for completing and submitting assignments on or before scheduled due dates and times. If an assignment is due, the student should make every effort to submit the assignment on time. Occasionally, a student may experience an unexpected life event that results in the submission of late work. Communication is the key. Instructors are more than willing to work with students in the event of an emergency if the student communicates with them before the date and time the assignment is due to make other arrangements.

If a student misses an assignment due date, they may submit that assignment late prior to the start of the next class meeting. **Late assignments will be graded with an automatic 20% deduction.** Assignments not submitted by the initial deadline date will be reflected in the course gradebook as a zero (0) until the assignment has been submitted and graded. Assignments submitted via E-mail will not be accepted under any circumstances and will receive a grade of zero.

E. MISSED TEST, EXAMS AND QUIZZES (FORMAL ASSESSMENTS)

Students may not make up a missed test, exam or quiz without a valid reason for their absence (illness, family emergency). It is the student's responsibility to contact their instructors before the absence. The instructor will review

the reason the student missed and determine if the circumstance justifies the student being allowed to take the formal assessment. Approved make-up assessments must be taken outside of the student's regular class schedule and during a time and location agreed upon between the student and instructor. Students are not to miss another class in order to make-up an assessment for another course. If the student fails to show on the date and time of the makeup assessment, the student will not be permitted to reschedule the makeup and the assessment and will earn a 0% grade.

F. THUNDER ALERT SYSTEM

UTTC's Thunder Alert System (TAS) is a proactive, communication-driven support system that provides timely identification and interventions to work with individual students to assist in generating plans to overcome challenges to college success. The system assists UTTC students by linking them to faculty and staff who can provide and connect students to available resources and strategies. The Thunder Alert serves as an opportunity for students to take ownership of their success and empower them to accomplish academic and personal goals. The system helps faculty and academic advisors connect and communicate with students as issues arise. The additional cross-wide partnerships create a culture of collaboration focused on the best interest of UTTC students.

Academic-related concerns such as attendance, missing assignments, or classroom behavior will result in a Thunder Alert being issued by faculty. When a Thunder Alert is issued, the student will receive an email requesting them to make arrangements to follow up with the instructor and/or their academic advisor. Students receiving a Thunder Alert should make the necessary arrangements to set up and meet with faculty as soon as possible to generate a plan of success.

G. ACADEMIC HONESTY

Students are expected to complete their own work. Academic dishonesty includes plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using course materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to dishonestly obtain grades, honors, awards, or professional endorsement; altering, forging, misrepresenting, or misusing an academic record; or fabricating or falsifying data, research procedures, or data analysis. Refer to [Academic Affairs policies](#) and procedures handbook for further information.

ARTIFICIAL INTELLIGENCE (AI) USE POLICY

Use of generative AI is subject to individual course instructor discretion. Instructors have the authority to:

- Authorize or restrict AI assistance partially or fully
- Define specific limits for individual assignments
- Establish course-wide AI usage policies
- AI use must be explicitly defined and approved by course instructors.
- Generative AI should not:
 - Replace original student work
 - Compromise the evaluation of student learning outcomes
 - Undermine the academic integrity of assignments

Misuse of AI will be considered plagiarism and is subject to consequences outlined in the Student Academic Honesty policy. Examples of AI misuse include:

- Generating entire writing assignments (essays, discussion posts) using AI
- Completing mathematical calculations using AI when computational skills are a learning objective
- Claiming credit for AI-generated content (art, music, program code)

- Using AI in ways not explicitly authorized by the instructor

When in doubt, students are encouraged to consult directly with their course instructors regarding the appropriate use of generative AI.

H. STUDENTS WITH DISABILITIES

United Tribes Technical College recognizes its responsibility for making reasonable accommodations to ensure there is no discrimination on the basis of a disability. The Disabilities Support Services coordinates reasonable accommodations, support services, and appropriate referrals for the purpose of removing barriers and providing an equitable learning environment. If you have a disability, please contact the Disabilities Services (DS) office at (701) 221-1456 or email at dss@uttc.edu.

I. TITLE IX STATEMENT

Title IX is a federal civil rights law that prohibits discrimination on the basis of sex, including sexual harassment, rape and sexual assault. United Tribes Technical College is committed to upholding the law and standards that promote respect and human dignity in a safe environment. Sexual misconduct and relationship violence in any form violates UTTC's mission, cultural values, Student Code of Conduct, and may also violate federal and state law. If you or someone you know has been impacted by sexual assault, dating and domestic violence, stalking, or sexual exploitation, UTTC has resources available on the [Title IX website](#). you can find the appropriate resources on the UTTC campus and in the community

J. DIVERSITY AND EQUITY STATEMENT

United Tribes Technical College values diversity because it enriches the community and wealth of experiences that characterize a post-secondary education. Our students, faculty, and staff come from Tribal lands throughout the United States and Canada. The majority of our students come from the northern plains region of the country, with 70% representing the North Dakota tribes.

UTTC recognizes that diversity is about much more than race, ethnicity or geography. Because students from many Tribal nations are represented at UTTC, from a wide range of cultural and ethnic backgrounds, students are encouraged to share their own cultural practices, traditions, and beliefs in the classroom in an effort to build an inclusive and welcoming community for all individuals and one from which we can learn from one another. We believe engagement with diverse perspectives and ideas is critical to the education and growth of all people, and we value the unique experiences and viewpoints of all of our community members.

EQUITY STATEMENT

United Tribes Technical College (UTTC) believes that access to a high-quality education in an inclusive environment is the right of all individuals and imperative for the continued advancement of a strong democracy and workforce. Equity is ensuring that all students receive what they need to be successful through the intentional design of the college experience.

K. TECHNOLOGY REQUIREMENTS

To ensure that you are using the recommended personal computer configurations, please refer to the [minimal technology requirements](#).

FACE-TO-FACE

PARTICIPATION / CLASS ENGAGEMENT

UTTC prepares students for the workforce by having high expectations for skills demonstrated in the classroom that transfer into future employment. This includes students' ability to be on time for class, to refrain from external distractions (such as cell phone usage or holding side conversations with other students), by providing positive contributions to class discussions, participating in individual or group activities, and being prepared for class.

CELL PHONES and LAPTOPS

Cell phones are turned off during class times out of respect for the other students and the instructor. If a student is expecting an important phone call (e.g. case worker, Housing, clinic), the instructor must be informed ahead of time and the cell phone set to a silent ring. If the call is received during class time, the student will answer the call and quietly step out of the classroom. Students may not use class time to check social media accounts, voicemail, text messages and/or personal emails.

STUDENT BEHAVIOR

UTTC students will conduct themselves in a responsible and respectful manner at all times in the classroom, in the hallways, in the Library, the Cafeteria, and any other location on campus. Student behavior that interferes with learning in the classroom will not be tolerated. This behavior includes chronic tardiness, threatening confrontations, intoxication, inappropriate physical contact, lewd or disrespectful language or gestures directed at the instructor or at fellow students, bullying, direct or indirect intimidation, and conversations with other students that are not related to classroom topics. Faculty are expected to maintain professional management of classroom activities prior to, during and after class times. As such, if a student demonstrates behavior that disrupts or interferes with classroom activities, an instructor reserves the right to ask the student to leave the classroom, to contact campus security, to request mediation by the academic department chair or an academic/personal counselor, or to file a formal complaint subject to a student disciplinary hearing.

BASIC NEEDS

Any student who faces challenges such as having enough food to eat or adequate housing and believes this may affect their attendance or performance in their courses is urged to contact the Wellness counselors for support. You can also notify your instructor for this course if you are comfortable doing so. Your instructor may be aware of additional resources that are available for you.

COURSE CALENDAR

The schedule below is subject to change at the instructor's discretion

SPRING 2024-2025

Module/Week	Book Chapter / Topic	Supporting Materials	Assessment
1 Jan 14 - 17	Course Overview Prologue The Nature of Science START UNIT 1 - MECHANICS Ch 1 Patterns of Motion and Equilibrium	Syllabus Class handouts, textbook, practice problems, activities	Exit tickets

2 Jan 20 - 24	*No School 1/20 MLK	Class handouts, textbook, practice problems, activities	Exit tickets
	Ch 2 Newton’s Laws of Motion		Week 2 Homework
3 Jan 27 - 31	Ch 3 Momentum and Energy	Class handouts, textbook, practice problems, activities	Exit tickets Week 3 Homework
4 Feb 3 - 7	Ch 4 Gravity, Projectiles, and Satellites Exam 1 Review	Class handouts, textbook, practice problems, activities	Exit tickets Exam 1 – Mechanics (Ch. 1,2,3,4*)
5 Feb 10 - 14	START UNIT 2 – THERMODYNAMICS, ELECTRICITY, MAGNETISM Ch 6 Thermal Energy and Thermodynamics	Class handouts, textbook, practice problems, activities	Exit tickets Week 5 Homework
6 Feb. 17 - 21	No School 2/17 President’s Day	Class handouts, textbook, practice problems, activities	Exit tickets
	Ch 7 Heat Transfer and Change of Phase		Week 6 Homework
7 Feb 24 – 28	Ch 8 Static and Current Electricity	Class handouts, textbook, practice problems, activities	Exit tickets Week 7 Homework
8 Mar 3 - 7	Midterm Grades Due 3/7	Class handouts, textbook, practice problems, activities	Exit tickets
	Ch 9 Magnetism and Electromagnetic Induction		Exam 2 – Thermodynamics, Electricity, and Magnetism (Ch. 6,7,8,9*)
Mar 10 - 14 Spring Break – No Classes			
9 Mar 17 - 21	Ch 11 Light	Class handouts, textbook, practice problems, activities	Exit tickets Week 9 Homework
10 Mar 24 - 28	START UNIT 3 - CHEMISTRY Ch 12 Atoms and the Periodic Table	Class handouts, textbook, practice problems, activities	Exit tickets Week 10 Homework
11 Mar 31 - Apr 4	Ch 14 Elements of Chemistry	Class handouts, textbook, practice problems, activities	Exit tickets Week 11 Homework
12 APR 7 - 11	Ch 15 How Atoms Bond and Molecules Attract	Class handouts, textbook, practice problems, activities	Exit tickets Exam 3 – Chemistry (Ch 12,14,15*)
13 Apr 14 - 18	No School 4/18 Good Friday	Class handouts, textbook, practice problems, activities	Exit tickets
	Ch 16 Mixtures		Week 13 Homework
14 Apr 21 - 25	START UNIT 4 - ASTRONOMY Ch 26-28 Astronomy	Class handouts, textbook, practice problems, activities	Exit tickets Week 14 Homework

15 Apr 28 – May 2	Finals Week	Review materials	Exam 4 – Astronomy (Ch 26-28) and grab bag of prior topics
	Review Day		
GRADES DUE	May 5, 2025		

*Indicates content not covered in a Weekly Homework