

**INSTRUCTOR | MICHAEL HOLCOMB**

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Office | ME 217

TR 1:00-2:00 & W 9:00-10:00 *or by appointment*

TA | ISHTIAQUE AHMED

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Office | SCI 009

Office hours TBD

COURSE OVERVIEW

PHYS 1404.004 meets weekly on TR 9:30-10:50am and M 11:00am-1:50pm in SCI 118.

This course is completely laboratory-based; it is not divided into lecture and laboratory components. The attendance policy will be enforced for all scheduled times beginning on the first day of class, January 21st.

Students will work through modules and learn content by performing experiments. Throughout the experiments there will be questions to guide student learning. The focus is on understanding the experiments and learning to develop models of

physical phenomena based on experimental evidence. It is the *process* students go through in class that is important.

There will be times for discussion with other students and points at which the instructor will question students to determine their understanding up to that point. Readings, exercises, and homework are also required as part of the course.

CORE PURPOSE STATEMENT

Students graduating from Texas Tech University should be able to demonstrate problem-solving skills and critical thinking skills, such as the development and use

of models that are consistent with experimental evidence. This is consistent with the objectives for the Life & Physical Science Core Curriculum Objectives and will be demonstrated by the Learning Outcomes, both of which are listed below.

CORE CURRICULUM OBJECTIVE

The objective of the study of the life and physical sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in life and physical sciences, and to enable the student to understand the bases for building and testing theories. Life and physical sciences investigate the phenomena of the physical world.

EXPECTED LEARNING OUTCOMES

There are objectives at the beginning of each section. Students should be able to demonstrate problem solving skills and critical thinking skills, such as the development and use of models that are consistent with experiment.

In particular, students should:

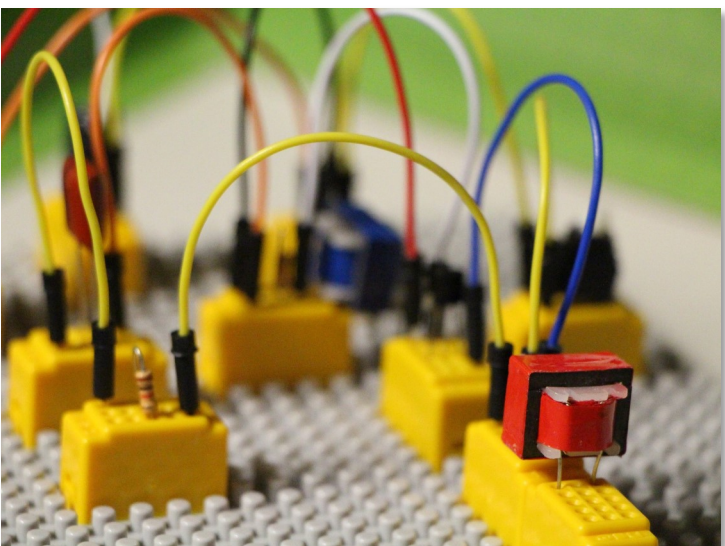
1. Understand the concepts listed in the objectives at the beginning of each section and be able to demonstrate their understanding by the ability to solve problems and answer questions related to the concepts. They should be able to explain the concept clearly to another person (so that the other person understands).
2. Understand how mathematical models are developed based on experimental evidence. They should be able to confirm this by demonstrating the ability to take and analyze data and develop a model based on the data, using graphing and other techniques, which can be used to predict the outcome of other experiments. They should understand the limitations of such models and be able to use them to make predictions.

METHODS FOR ASSESSING EXPECTED LEARNING OUTCOMES

Learning outcomes will be assessed through quiz, homework and exam problems that require students to explain their reasoning and in-class discussions with their peers.

COURSE COVERAGE

Electrostatics, Coulomb's Law, the Electric Field, Electric Flux and Gauss's Law, Electrical Potential Difference, Direct Current Circuits, Capacitors, Magnets, Magnetic Fields and Magnetic Forces, and Optics.



REQUIRED MATERIALS

There is no textbook for this section. You will buy a manual (similar to a lab manual) from the Society of Physics Students in the basement of the Science Building (SCI 004). Times and prices TBA.

This section of PHYS 1404 has its own manual separate from the traditional lecture section. **Make sure the manual you purchase has PHYS 1404.003 on the cover.** You are in section 1404.004 but we are using the same manual as section 1404.003.

CLASS POLICIES

- Attending class is mandatory. You are both advised and responsible for anything covered during class.
- NO food or drink is allowed. This is a university policy for labs.
- There will be times you have a question when both the TA and I are busy helping other groups. Please be patient. Use that time to work on homework, read any readings for the unit you're on, or go back and review what you've already done. Do **not** use time waiting for socializing.

COURSE COMPONENTS & GRADING

HOMEWORK & QUIZZES

Together homework and quizzes will count as 15% of your final course grade.

Homework will be assigned approximately every 7-10 days. The due date will be indicated on the homework. Homework must be turned in at the beginning of the class on the day it is due. After the beginning of class it is late. (If you are late for class, it is late.) Late homework will be accepted at my discretion, meaning it may not be accepted. Homework will be graded; it is an important part of the class.

There will be quizzes on content and process covered in class, homework, readings, and exercises up to that point. Quizzes will usually be announced, but don't have to be.

PARTICIPATION

Participation will count as 20% of your final course grade.

If you come to class and participate each day, not arriving late, not leaving early, being on task when you are in the laboratory, etc., you will receive the full participation grade. Unexcused absences will result in a loss of one point for each unexcused absence. Absences will be excused for illness (documentation may be required), university sponsored events, court appearances, and what I define as emergencies. Cell phones should be turned off and put out of sight for the duration of the class period. Students engaging in repeated cell phone use will be asked to leave class. Students working on coursework for other classes will be ejected and lose two participation points.

"Discuss with your Instructor"

There are places in the manual where you are instructed to discuss with your instructor (the TA counts as an instructor in this context) your results or answers to questions. Students who fail to do so will receive a reduction in their participation grade. The point of discussing with the instructor is to confirm that students fully grasp the concepts they are about to apply in the next section of the activity.

Punctuality

Because this course is taught in a nontraditional manner in which students work in groups, attendance and punctuality are important. In the past, there have been individuals who have consistently been late. This can be

disruptive, as the students who arrived on time must stop and catch up the students who are late. In some cases, groups have been rearranged and students come in late. Beginning this semester, students who show up more than 10 minutes late will not be admitted to class without extenuating circumstances and will be given an unexcused absence. The instructor will determine what constitutes an extenuating circumstance. (Note: missing the bus, oversleeping, and faulty alarms do not count as extenuating circumstances.)



EXAMS

There will be three midterm exams and a comprehensive final exam on content and process covered in class, homework, readings, and exercises up to that point. All exams will be closed book. *Tentative* dates for the exams are listed below. With the exception of the final exam, I reserve the right to modify the exam dates. Some exams may contain a group component consisting of a hands-on investigation as well as an individual component.

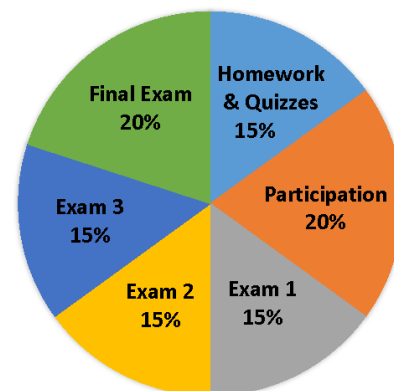
- Midterm exam 1** February 15
- Midterm exam 2** March 21
- Midterm Exam 3** April 18
- Final Exam** Friday, May 13, 7:30–10:00 am

Each midterm exam will count as 15% of your final course grade and the final exam will count as 20% of your final course grade.

GRADES

The grades will be distributed as follows:

Homework & Quizzes	15%
Participation	20%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	20%
TOTAL	100%



IMPORTANT DATES

Week of	Events
January 18	Thursday, Jan. 21 - First class day
25	
February 01	Friday, Feb 5 - Last day to drop <i>without academic penalty</i>
08	
15	Monday, Feb. 15 - Exam 1
22	
29	
March 07	
14	<i>Spring Break - No class</i>
21	Monday, March 21 - Exam 2
28	<i>Monday, March 28 - No class</i> ; Thursday, March 31 - Last day to drop
April 04	
11	
18	Monday, April 18 - Exam 3
25	
May 02	Wednesday, May 4 - Last day to withdraw from the university
Comprehensive Final Exam - Friday, May 13– SCI 118, 7:30-10:00 a.m.	



UNIVERSITY POLICIES

ACADEMIC INTEGRITY

Students are expected to abide by the Student Code of Conduct at all times, especially in regards to academic integrity. Students violating the Code (or suspected of violating the Code) will be referred to the Office of Student Conduct. If the Office of Student Conduct finds that a student has violated the Code, then an academic penalty will be imposed in addition to any sanctions from the Office of Student Conduct. The penalty can range from a

lowered grade in the course to an F in the course. Students found responsible for cheating on exams will be given a grade of F in the course. Cheating includes, but is not limited to, copying someone else's work, looking on someone else's paper during an exam/quiz, sharing calculators or other materials during an exam/quiz, and using restricted material during an exam/quiz.

TTU OP 34.12 outlines grading policy as well as the definitions of scholastic dishonesty, all of which will be followed in all aspects of this course.

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. [...] "Scholastic dishonesty" includes, but [is] not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts and any act designed to give unfair academic advantage to the student... or the attempt to commit such an act.

ACCOMODATIONS (ADA STATEMENT)

In compliance with the ADA, TTU OP 34.22, and TTU OP 10.08:

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor's office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or call 806-742-2405.

RELIGIOUS HOLIDAYS

Pursuant to TTU OP 34.19:

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.