Course Syllabus

ElectroMagnetism & Waves

Revised August/2021

Course Number/Section	**PHYS 2326.004**
Course Title	**Electromagnetism and Waves**
Term	Fall 2021
Time & Location	Mon, Wed & Friday 12:00 - 12:50 pm, SCI 1.220
Instruction Mode: Traditional	

Instructor Contact Information
Lamya Saleh
Office: SCI 3.132
Phone: extension 5773
E-mail: lxs190019@utdallas.edu
Office Hours: Tuesdays 12 - 2 PM

Teaching Assistant:
Mengxin Du
E-mail: mengxin.du@utdallas.edu
Office Hours: Mondays 4:30 - 5:30 PM and Wednesdays 4:30 - 5:30 PM

Course Pre-requisites and Co-requisites
Pre-requisites: PHYS2325 and MATH2419 or MATH2414, Co-requisite: PHYS2126.
A modest proficiency in vectors, vector algebra and basic calculus skills is required.

Course Description and Learning Outcomes:
Electromagnetism and Waves serves as an introduction into Electricity, Magnetism and Electromagnetic Waves. It is the second of the two required freshmen calculus-based physics courses. The course will be taught at the level introduced in introductory physics textbooks (examples listed below).

Topics introduced in the course :

Electric charges and matter, forces, the electric field, Gauss's Law, and electric potential.
Currents, resistance and capacitance.
Magnets, magnetic forces and fields with applications.
Ampere's law and induction
Electromagnetic waves.

Instructional Mode:
Traditional.
The following options will be provided:

- Instructor will meet with class during the class assigned time. De-densifying will be applied
- . *Students who are experiencing symptoms or have reason to avoid crowds should stay at home. Students attending are encouraged to wear masks.*
- All required Material will be provided online for access from home**.**

For more information on university policies and procedures, visit

https://go.utdallas.edu/syllabus-policies

Textbook

We will not follow a specific textbook in this course. You are encouraged to use a textbook of your choice as a reference. Any relatively recent Introductory physics textbook will be sufficient.

Suggested textbooks:

- University Physics, Young and Freedman, Volume 2.

- Fundamentals of Physics, D. Halliday, R. Resnick, J. Walker. Volume 2;

- Physics for Scientists and Engineers, R. Serway & J. Jewett;

- Physics for Engineers & Scientists , H. Ohanion & J. Markert

Mastering Physics

Mastering Physics Assignments are a requirement for this course. You will need to purchase online access to the assignments.

Mastering Physics is now accessible from Blackboard.

Instruction for obtaining access to Mastering Assignments:

- Login to Blackboard/Elearning and enter the PHYS2326 class.
- Once you're in the homepage of the class, select from the menu to the left, "Mastering Assignments".
- Click on "MyLab and Mastering Homepage". You will then be promoted to accept terms and conditions. If you don't have an account with Mastering Physics, select "Create a Pearson Account" and complete the required fields. You will then be prompted to make your payment either by entering an access code that you can purchase from the book store or simply pay online using PayPal or with a credit card. Students who purchased access for one year when they took PHYS2325, can simply enter their existing Pearson account username and password to sign in and will not need to make any further payments.
- To access your Mastering assignments later, simply login into Elearning and select Mastering Assignments. You may also choose "Pearson Diagnostics" for access to a wider range of surfaces including assignments, such as: e-text, scores and the study area. Take your time to explore all these resources early in the semester.

Weekly course Material:

Lecture notes on Elearning: Every week a new folder will become available on Elearning Homepage starting the Friday before. These folders will be titled by week; Week1, Week2, …..etc. The folder will contain all lecture notes for the week.

Recorded Lectures on Teams: These will be saved under "Microsoft Teams" which can also be reached from the menu on the left.

Quizzes: will be available on Elearning under "Quizzes and Exams". Quiz questions will be chosen to enhance basic new concepts.

Class: Instructor will meet in person with class during class time under the conditions for de-densification explained in the emails sent out to class.

Mastering Assignments will be posted Monday after class and are due Sunday evenings.

Assessment / Rubric:

Mastering Assignments (40% of final score)
Weekly Mastering Assignments will be made available each Monday after class and will be *due on the following Sunday by midnight*. All homework assignments must be completed on the MasteringPhysics website for this class.
When working on assignments, students are encouraged to discuss the relevant physics concepts with classmates or with TAs, but are expected to answer the questions on Mastering Physics individually. This is important since these problems are chosen carefully to prepare you with the right problem solving skills necessary for success in this course.

Exams (50% of final score) including: three Midterm Exams, the lowest dropped (15% each) and a cumulative Final Exam (20%).
There will be ***no make-up exams for any reason*. More details about exams will be added later.**

Quizzes (10% of final score): 10 quizzes. Will be available on Elearning under "Quizzes and Exams".

Extra Credit: will be offered during Quizzes and Midterm exams.

Schedule

Schedule is intended to give a brief overview of all material we intend to cover. *The order, date of coverage and time devoted for each section may vary based on need.*

Exam dates are final except in the case of a real emergency situation, which we don't anticipate.

Week starts	Topic
Week 1 Aug 23	Introduction, Course Description. Definitions and Relationships. Properties of Electric Charges; Forces and Coulomb's law
Week 2 Aug 30	Electrostatics: Electric Fields; Polarization vs. Excess of Charge
Monday Sept 6	Labor Day. University closed.
Sept 8	Census Day
Sept 8	Last day to drop a class without a "W"

Week 3 Sept 8	Conductors & Insulators; Electric Fields & Gauss's Law
Monday Sept 13	First Midterm Exam
Week 4 Sept 15	Electric Potentials. Fields and Potentials of continuous charge distributions. Potential Gradient.
Week 5 Sept 20	Capacitance and Capacitors in series and in parallel; Dielectrics; Electric field Energy
Monday Sept 27	Second Midterm Exam
Week 6 Sept. 29	Electric Currents; Electromotive force; Resistance; Ohm's Law; DC circuits; Parallel and Series circuits
Week7 Oct. 4	Kirchhoff's Rules; RC circuits.
Week8 Oct. 11	Magnetic fields and Magnetostatics; Magnetic force.
Week9 Oct. 18	Cathode-ray Tubes; Mass selector; Mass spectrometer
Monday Oct 25	Third Midterm Exam
Week10 Nov. 1	Magnetic fields by moving charge; Ampere's law
Nov 3	Withdrawal ends
Week11 Nov. 8	Time-dependent Fields; Faraday's Law; Lenz's Law; Induced Electric fields
Week12 Nov. 15	Mutual Inductance; Self Inductance and inductors;
Week13 Nov. 22	RL and LC circuits
Week14 Nov. 29	Maxwell's Equations and Electromagnetic Waves. Function representation of Waves; Properties of Waves.
Week15 Dec. 6	Review
Dec. 7	Last day of classes
Wednesday, Dec. 8	Reading Day
Dec. 9 - 15	**Final Exams**

All descriptions and timelines are subject to change at the discretion of the Instructor.

Classroom Safety and COVID-19

To help preserve the University's in-person learning environment, UT Dallas recommends the following:

- Adhere to the University's CDC Updated Guidelines issued on July 30, 2021. All Comets are strongly encouraged to wear face coverings indoors regardless of vaccination status. Please note this represents a change in the campus guidance issued on May 20, 2021.
- Students Must Isolate or Quarantine if tested positive for COVID-19 or who are close contacts.
- Students must Verify COVID-19 Isolations or Quarantines by self-reporting COVID-19 positive results or exposures via an online form so that university campus tracers can verify, record, and take necessary campus precautions. Students should not attend class until cleared by campus tracers.
- Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are encouraged to get a COVID-19 vaccine and register your vaccination status through the voluntary vaccine report form.
- Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the Comets United webpage for additional information.
- Unvaccinated Comets will be expected to complete the mandatory Required Daily Health Screening. Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the Student Code of Conduct – UTSP5003. All students are encouraged to read the Recommendations for Students Returning to Campus issued on August 2, 2021.
- Other Student Resources: Comets United webpage: check frequently. Also checkout FAQ

Student Resources: a variety of resources are available to help students to obtain counseling, health care, and academic support.
Previous Campus Communications: a list of university announcements made in 2020-2021.
"What should I do if I become sick?"

Code of conduct and University policies:

- Academic Integrity: Each student is expected to exercise independent scholarly thought, expression, and aptitude. Copying or assisting in copying of homework assignments or exams, in whole or in part, from the internet, other students or from assignments from other sections/ semesters will be considered to be an act of academic dishonesty, which, once suspected, will be reported to University. Students who violate University rules on academic dishonesty are subject to disciplinary sanctions, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students, and the University, policies on academic dishonesty will be strictly enforced. See more information on UTD Community Standards and Conduct website.
- The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.
- Class recordings are expressly prohibited from being published, reproduced or shared with those not enrolled in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation.
- Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty.
- Successful participation in this class is defined as consistently adhering to University and classroom requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct
- Check the Comets United: Latest Updates webpage for the latest guidance on the University's public health measures. Comets are expected to carry out Student Safety protocols in adherence to the Comet Commitment. Unvaccinated Comets will be expected to complete the Required Daily Health Screening. Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the Student Code of Conduct – UTSP5003.
- Disability Services: It is the policy and practice of UTD to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please contact the Office of Student AccessAbility. This office evaluates the students' needs and provides an assessment. Bring the assessment to your professor. We are committed to meeting every student's needs. Please allow **one week** advance notice.
- In the event of public emergency, inclement weather, etc., that leads to unexpected closure of the university, class will not meet. Please follow the university announcement for its closure and reopening. After the event, look for Announcement on eLearning about the class reschedule.
- The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please refer to https://go.utdallas.edu/syllabus-policies

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please see http://go.utdallas.edu/academic-support-resources.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.