Syllabus - Electromagnetism and Waves (PHYS 2326, 2025 Spring)

Note that the descriptions and timelines provided in this syllabus are subject to change at the discretion of the instructor. Any update will be announced through eLearning.

Course Information:

Title: Electromagnetism and Waves (PHYS 2326)
Time: Tue & Thu 5:30 pm – 6:45 pm
Location: SCI 1.220

Instructor Contact Information:

Instructor: Qingyu Zhu (Assistant professor in Physics)
Email: qingyu.zhu@utdallas.edu
Office phone number: 972-883-2883
Office location: WSTC 1.716
Office Hours: 4:20-5:20 pm Tue (**SCI 3.253**)

Teaching Assistant (TA) Information:

TBD

Course Descriptions

1) Prerequisites & Corequisites

Prerequisites: PHYS 2325 (Mechanics) and MATH 2414 (Calculus II)/MATH 2419 (Integral Calculus)
Co-requisites: PHYS 2126 (Physics Lab II)

2) Recommended Textbook

Electromagnetism and Waves is a calculus-based introduction course into Electricity, Magnetism and Electromagnetic Waves. The textbook used in this course is ***University Physics with Modern Physics (15th Edition)*** by Young and Freedman (Publisher: Pearson). Earlier or newer versions would have nearly the same material.

3) Homework Platform:

The course will use the ***Mastering Physics*** online platform to homework, and subscription is needed and can be purchased directly on the website. You will need to register at https://mlm.pearson.com/northamerica/masteringphysics/ so that you can access the online homework web site for this class. The course ID for this class is zhu60173.

(Note: Students who purchased multi-term access can simply enter their existing Pearson account username and password to sign in and will not need to make any further payments).

4) Topics (Chaps 21-32 of the textbook):

i. Electrical Charge and Electric Field
ii. Gauss's Law
iii. Electric Potential
iv. Capacitance and Dielectrics
v. Current, Resistance, and Electromotive Force
vi. Direct-Current Circuits
vii. Magnetic Field and Magnetic Forces
viii. Sources of Magnetic Field
ix. Electromagnetic Induction
x. Inductance
xi. Alternating Current
xii. Electromagnetic Waves

5) Learning Objectives/Outcomes

This course is aimed to provide students a comprehensive overview of the fundamental concepts related to the electromagnetism. As a results of the course, the students are expected to demonstrate an understanding of the important concepts of electricity and magnetism. In addition, the students are expected to develop problem solving skills and apply the knowledge learned in this course to solve problems in the class or problems related to their future career.

6) Tentative schedule (Subject to change)

Week	Date	Content	Homework Due
1	1/21	Intro, Chap 21	
	1/24	Chap 21	
2	1/28	Chaps 21, 22	HW1
	1/30	Chaps 22	
3	2/4	Chap 23	HW2
	2/6	Chap 23	
4	2/11	Review #1	
	2/13	Exam #1	
5	2/18	Chap 24	HW3
	2/20	Chap 24	
6	2/25	Chap 25	HW4

	2/27	Chap 26	
7	3/4	Chap 26	HW5
	3/6	Chap 26	
8	3/11	Review #2	
	3/13	Exam #2	
9	3/18	Spring break - No class	
	3/20	Spring break - No class	
10	3/25	Chap 27	HW6
	3/27	Chap 27	
11	4/1	Chap 28	HW7
	4/3	Chap 28	
12	4/8	Chap 29	HW8
	4/10	Chap 29	
13	4/15	Review #3	
	4/17	Exam #3	
14	4/22	Chap 30	HW9
	4/24	Chap 30	
15	4/29	Chap 31	HW10
	5/1	Chap 32	
16	5/6	Review #4	HW11
	5/8	Exam #4	
17	5/13	Final week - No class	HW12
	5/15	Final week - No class	

7) Assessments

Final grade = 66 (Exams) + 24 (Homework) + 10 (Attendance) + Bonus Points

Explanations:

i. **4 Exams:**
   a. Take the 3 exams with the highest scores: 22 pts for each
   b. Closed book but formula sheets will be provided in advance.
   c. Based on class examples and homework
   d. Multiple choice + Fill-in-blank problems
   e. Only scientific calculator is allowed. No cellphone.
   f. Bring a valid picture ID.
   g. **Makeup exams** will only be given under exceptional circumstances with well documented reasons beyond the students' control. Requests should be made to the instructor before each scheduled exam. Students that need this arrangement

are expected to justify the reason of your absence. Makeup exams have different problem sets from the original exams.

ii. **Homework:** 12 times and 24 pts in total
   a. Late submission is not accepted (Please note that the MasteringPhysics uses Eastern Time: If the due is 5:00 pm on the system, it means that the due time is 4:00 pm Central Time). No handwritten homework will be accepted.
      i. Extending **1** homework assignment is possible. Please complete it on your side first and make the request through email within 6 hours of the original due. Otherwise, the request will not be taken.
   b. You will be allowed to 20 attempts.
   c. You are welcome to work together on homework, but everyone must do your own problems (you may notice the numbers may be different).
   d. Please refer homework questions to TAs.

iii. **Attendance (Random):** 10 pts in total

iv. **Bonus points: Pretest and Posttest quizzes**

Schedule for the Pretest and Posttest quizzes

Instructor	Course Information	Exam Name	Start Date	End Date	Duration
Paul Mac Alevey	PHYS 1302/PHYS 2326.All Sections	Electromag Pretest	1/21/2025	1/31/2025	60 min
		Electromag Posttest	4/16/2025	4/26/2025	60 min

   a. There are **two extra credit points** associated with the two tests. You will receive the bonus points if you **take both quizzes seriously**. There is no penalty for not taking these two quizzes.
   b. The quizzes will be taken at the testing center on the first floor of the **Synergy Park North 2 building (SPN2)**. Students register for the quizzes at https://ets.utdallas.edu/testing-center. If you really need to do the test at the OSA test center, please send your accommodation letter to Dr. Paul Mac Alevey (paulmac@utdallas.edu). The test is delivered through eLearning, but on an eLearning site (with Dr. Paul Mac Alevey as the instructor) separate from the one used for lectures of this class.
   c. The test center requires students to reserve the test time online at least 48 hours before the intended exam time. It is strongly recommended to reserve a time for the posttest while reserving a time for the pretest (to avoid the possibility of forgetting to arrange the posttest near the end of the semester and losing the opportunity of obtaining the extra credit).
   d. Please refer to the testing center guidelines on how to schedule, reschedule, cancel your test and how to take it during your scheduled time: https://ets.utdallas.edu/testing-center/students/.

Grading:
A+ (> 97), A (93 - 96.9), A- (90 – 92.9), B+ (87 – 89.9), B (83 – 86.9), B- (80 - 82.9)
C+ (77 - 79.9), C (73 - 76.9), C- (70 - 72.9), D+ (67 – 69.9), D (63 – 66.9), D- (60- 62.9), **F (< 60)**

8) Code of conduct and University policies:

i. 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.

ii. **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 under the Student Code of Conduct – UTSP5003. Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action.

iii. **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.

iv. 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.

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."
