

PHYSICS 2220
Electricity and Magnetism
Spring 2021

Lecture Section 3, Remote Instruction, MWF 10:00 am - 10:50 am

211 REC MW 02:00 pm- 2:50 pm

212 REC WF 12:00 pm-12:50 pm

214 REC MF 9:00 am – 9:50 am

215 REC MW 4:00 pm- 4:50 pm

Professor: Vincent Lopes

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Telephone: (940) 565-4726

E-mail: Vincent.Lopes@unt.edu

Office Hours (via Zoom): Monday 11:30 am – noon, and Tuesday 11:30 am – noon

By appt only Monday 2:30 pm – 3:30 pm

Course Materials:

The recommended text is *University Physics*, 13th, 14th, or 15th Edition, by Young and Freedman (Pearson). Other calculus-based introductory physics texts are acceptable; ***the successful student will have a text.*** You are required to obtain access to the Expert TA online homework system.

Topics:

This course will cover electric fields, direct-current and alternating-current circuits, magnetic fields and magnetic induction, electric and magnetic properties of matter, electromagnetic waves, and geometrical and wave optics.

Class Materials for Remote Instruction:

The UNT fall schedule requires this course to have fully remote instruction. Students will need access to a webcam, microphone and computer capable of running Zoom and the Respondus lock-down browser in Canvas. You should familiarize yourself with using these programs. Information on how to be successful in a remote learning environment can be found at <https://online.unt.edu/learn>.

Class Recordings & Student Likenesses:

Any class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

Physics 2220 Core Objectives:

This course satisfies the core course requirement by fostering skills associated with four core objectives:

- 1) **Critical thinking** - analysis, evaluation, and synthesis of information.
- 2) **Effective communication** - development, interpretation, and expression of ideas through written, oral, and graphical means.
- 3) **Quantitative skills** - the ability to compute and manipulate quantitative data and to reach meaningful conclusions.
- 4) **Teamwork** - the ability to consider different points of view and to work effectively as a team.

Class Policies:

- 1) Students are to attend class and recitations regularly as scheduled.
- 2) Students are to be prepared for class (read/review assigned chapters prior to lecture).
- 3) This is a professional environment. Students are to be respectful of the instructor and other students. No vulgar language or rude behavior will be tolerated.
- 4) Pertinent questions should be directed to the instructor. Patience with other student's questions is expected behavior.
- 5) *Classes will start at the assigned time. Tardy students will not be given any additional time on Exam or Final Exam days.*
- 6) Students are expected to participate by answering in-class questions, and taking weekly written recitation quizzes.
- 7) Silence mobile phones prior to attending class. Put mobile phones away.

Exams:

- 1) There will be three exams during the semester, to be given starting at 4:00 pm on Friday afternoons, and a comprehensive final exam, to be given at **8:00 AM on Saturday, April 24th**. Exam questions will be based on lecture material, material contained in the text and in the homework assignments. Exams will be comprised of multiple choice questions/problems. You will be required to download Respondus Lockdown Browser on your computer and access it when taking your exams.
- 2) There will be no makeup exams.
- 3) **Any student caught cheating will be given a grade of zero for that exam or final exam.**
- 4) Questions pertaining to the grading of exam questions and problems must be directed to the instructor in writing **within one weeks** after the exams were administered.

Homework:

- 1) All homework will be posted, collected, and graded via the internet.
- 2) You must access your assignment each week online through the Expert TA website, work the problems, and submit your solutions to the server by the due date indicated online.
- 3) Homework grading policy: Your homework grade is determined from your Expert TA web-based homework score.

Expert TA registration is given at the end of this syllabus.

Grades:

The course grades will be calculated as follows:

Exam 1.....	16 %
Exam 2.....	16 %
Exam 3.....	16 %
Final Exam.....	30 %
Home Work.....	17 %
Class/Recitation.....	5 %

Letter grades will be assigned on the basis of the following numerical scores:

90 —100 = A
80 – 89 = B
70 - 79 = C
60 - 69 = D

Lab Credit:

You must enroll separately in Physics 2240 for laboratory science credit.

Topic Schedule – the instructor reserves the right to amend the topic schedule.

1	11-Jan	M	Introduction
2	13-Jan	W	Ch. 21, Electric charge and electric field
3	15-Jan	F	Ch. 21, continued
-	18-Jan	M	<i>No class Monday, Jan 18 – Martin Luther King Day</i>
4	20-Jan	W	Ch. 21, continued
5	22-Jan	F	Ch. 22, Gauss's Law
6	25-Jan	M	Ch. 22, continued
7	27-Jan	W	Ch. 22, continued
8	29-Jan	F	Ch. 23, Electric Potential
9	1-Feb	M	Ch. 23, continued
10	3-Feb	W	Ch. 23, continued
11	5-Feb	F	Ch. 24, Capacitance and dielectric
12	8-Feb	M	Ch. 24, continued
13	10-Feb	W	Ch. 24, continued
14	12-Feb	F	Ch. 25, Current, resistance, and emf
	12-Feb	F	Exam # 1 Chap 21 - 24
15	15-Feb	M	Ch. 25, continued
16	17-Feb	W	Ch. 25, continued
17	19-Feb	F	Ch. 26, DC circuits
18	22-Feb	M	Ch. 26, continued
19	24-Feb	W	Ch. 26, continued
20	26-Feb	F	Ch. 27, Magnetic field and magnetic forces
21	1-Mar	M	Ch. 27, continued
22	3-Mar	W	Ch. 27, continued
23	5-Mar	M	Ch. 28, Sources of magnetic field
24	8-Mar	M	Ch. 28, continued
25	10-Mar	W	Ch. 28, continued
26	12-Mar	F	Ch. 29, Electromagnetic induction
27	15-Mar	M	Ch. 29, continued
28	17-Mar	W	Ch. 29, continued
29	19-Mar	F	Ch. 30, Inductance
	19-Mar	F	Exam # 2 Chap 25 - 29
30	22-Mar	M	Ch. 30, continued
31	24-Mar	W	Ch. 30, continued
32	26-Mar	W	Ch. 31, Alternating current
33	29-Mar	M	Ch. 31, continued
34	31-Mar	W	Ch. 31, continued
-	2-Apr	F	<i>No class – Friday April 2nd - Spring Holiday</i>
35	5-Apr	M	Ch. 32, Electromagnetic waves
36	7-Apr	W	Ch. 32, continued
37	9-Apr	F	Ch. 33, Nature and propagation of light
38	12-Apr	M	Ch. 33, continued
39	14-Apr	W	Ch. 33, continued
40	16-Apr	F	Ch. 34, Geometrical optics
	16-Apr	F	Exam # 4 Chap 30 - 33
41	19-Apr	M	Ch. 34, continued
42	21-Apr	W	Open
-	23-Apr	F	<i>No Class, Reading Day</i>
Final	24-Apr	Saturday	FINAL EXAM — Comprehensive— 8:00 am to 10:00 am

Physics 2220 Goals and Learning Strategies:

The goals of instruction in Physics 2220 are to lead and to guide you to master the fundamentals of elementary classical mechanics and thermodynamics, to construct for yourself a fundamental understanding of these topics, to develop your skills of analysis using the mathematical tools of algebra and calculus, and to cultivate an interest in and an appreciation for physics in nature and in the human experience. To help in achieving these goals you are requested to pursue the following strategies:

- 1) **Read the text chapter within the forty-eight hours prior to the class.** You should bring your questions to class or e-mail to the instructor prior to the morning of the class.
- 2) During class, **listen, observe, take notes, analyze, discuss with peers, answer questions, solve in-class problems.** (Again, **silence your mobile phone and put it away.**)
- 3) **Review your textbook chapter summary and your notes** within twenty-four hours after class.
- 4) **Work the assigned problems** only after you have read and reviewed the material of the chapter. If you get stuck on a problem (for instance, after 3 unsuccessful attempts, or 20 minutes of effort), move on to the next problem and bring your questions to recitation, the Physics Instructional Center help room, or your instructor.
- 5) **Communicate with your instructor** via e-mail at Vincent.Lopes@unt.edu or during office hours whenever you have an observation or question. **Be specific with your questions.**
- 6) **Come to class prepared!**
- 7) **Work extra practice problems**, such as from the text's end-of-chapter problems.

To learn more about campus resources and information on how you can achieve success, go to succeed.unt.edu.

Ancillary Information

Academic Accommodations

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at [940.565.4323](tel:940.565.4323).

Key dates:

<https://registrar.unt.edu/registration/spring-registration-guide>

Last day for a student to drop a class with a W: Friday April 2nd, 2021

UNT's policy on ***Academic Dishonesty*** can be found at:

<http://www.vpaa.unt.edu/academic-integrity.htm>

Canvas will be used to post some useful course materials and your grades. To get to this resource, go to <https://unt.instructure.com/login/canvas> and follow the UNT link to log on. (You will log on using your UNT EUID and password.) Once logged on, select this course. You will find an electronic copy of this syllabus, copies of the PowerPoint presentations from lecture, and exam expectations.

Course Evaluation

The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short survey will be made available to you on-line at the end of the semester and will provide you with an opportunity to provide feedback to your course instructor. SPOT is considered to be an important part of your participation in this class. In addition to SPOT, there will be a brief in-class course survey during the last two weeks of the semester.

For the Spring 2021 semester you will receive an email from "UNT SPOT Course Evaluations via *IASystem* Notification" (no-reply@iasystem.org) with the survey link. Please look for the email in your UNT email inbox. Simply click on the link and complete your survey.

After logging in to the my.unt.edu portal, students can access the SPOT survey site by clicking on the SPOT icon. A list of their currently enrolled courses will appear. Students complete each course evaluation independently. During the long terms, the SPOT is open for students to complete two weeks prior to final exams. During the Spring term, the SPOT is open for students to complete six days preceding their final exam. See [SPOT Calendar](#) for specific dates and deadlines.

COVID-19 Impact on Attendance

While attendance is expected as outlined in the syllabus, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. If you are experiencing any symptoms of COVID-19 (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, are more important.

Expert TA: Student Registration Instructions – University of North Texas (Physics)

Getting Started: See steps below for registering and using Expert TA.

Step 1: Copy and Paste the registration link from below into your browser. *UNT Student Registration - PHYS 2220-003 (Spring 2021) E&M with Dr. Vincent Lopes \$32.50*

<http://goeta.link/USQ45TX-88C4E2-2IA>

Step 2: Enter your email. You will see information about your class at the top. You will be asked to enter your email address. This will serve as your user name. Please remember which email address you use. Some schools assign more than one email to students. You will only be able to log into Expert TA with the exact email you register with. Click Continue.

Step 3: Choose a password (or login). After entering your email address, you will be taken to a page to enter a password. Your password must be at least 7 characters. We recommend including a mixture of upper or lower case letters with numbers and one special character (ex: #, !, etc...). Click Continue.

Step 4: Your Personal Info. Enter or verify your first name, last name, and student ID. The student ID would be the one provided by your school. Double check the class information at the top to make sure you are registering for the proper course section. Scroll down to accept Terms of Service; click Continue.

Registration is Complete and you are almost done!

Step 5: Check-out. You will not be able to do homework until you complete the payment process. - *You will need to click on the check box* to confirm that you are purchasing access for the class listed.

- After you have clicked the check box, you will choose your method of payment. If you are using a credit card to pay now, click "Credit Card". The option for a free Trial will allow you to delay your payment for exactly two weeks. If trial is chosen, you will be able to do homework immediately, and asked to make your actual payment with a credit card after the trial period has ended.

Step 6: Payment with a Credit Card - After clicking "Credit Card" you will be redirected from our site to Authorize.net - Authorize.net is an industry leader in secure payments and used by tens of thousands of companies. - Enter your credit card information. Note: Pay careful attention when entering the address information. This information must match the billing information on the card (this is normally your house; not your dorm address). If the zip code entered here doesn't match, the transaction will not process. This is a security measure that helps to keep people from using your card if it is stolen.

Step 7: Once a credit card payment has been made, or another payment option was used during your registration, you can begin using Expert TA. You will be directed to the main class management screen where your class and assignment details can be found. Tutorial problems are available in the "Student Practice Area" below the Class Menu window. Hints and Feedback are provided throughout the term. Hints are generalized tips. Feedback is specifically offered based on your most recent incorrect answer.

Student Support & FAQs: <http://theexpertta.com/support/student-support>

24x7 Student Support - email main@theexpertta.com or call 877-572-0734. Have a great semester!