



Syllabus
PHYS 2426.002
University Physics II: Electricity and Magnetism
Spring 2018

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COURSE INFORMATION

Textbook(s) Required:

1. Access to *MasteringPhysics* online homework system, with *Knight, Physics for Scientists and Engineers, 4th edition*. You have the option of buying *MasteringPhysics* with etext only (ISBN 9780134083148), *MasteringPhysics* with etext and looseleaf copy of the physical text (ISBN 9780134092508), or *MasteringPhysics* with etext and traditional textbook (ISBN 9780133953145).
2. *McDermott, Tutorials in Introductory Physics* Workbook and Homework package (ISBN 9780130970695). This comprises 2 books – one containing class activities, and one containing homework activities.
3. *PHYS 2426 Lab Manual*, available at the campus bookstore

Course Description:

Physics 2426 is the second semester of a calculus-based physics sequence. University Physics II introduces electrical and magnetic phenomena in nature, including the concepts of electrical charges, electric and magnetic fields, the application of Gauss' Law, electric potential, conductors and insulators, currents, basic circuits, and induction.

University Catalogue Description

Second semester of calculus based physics with topics in electricity and magnetism for science, mathematics, and engineering students. Prerequisites: PHYS 2425 with a minimum grade of C, MATH 2413. Additionally, MATH 192 or concurrent enrollment.

Student Learning Outcomes

Students will be able to demonstrate the following skills when analyzing situations involving electrostatic fields and potentials and their sources, currents, voltage, capacitance, power, basic electrical circuits, magnetic fields and their sources, and induction:

1. Students will be able to conduct qualitative analysis of electromagnetism problems which demonstrates conceptual understanding as measured by performance in visualizing problems through diagrams, estimating answers, assessing and justifying answers, analyzing graphs and clear, written explanations.
2. Students will be able to perform quantitative calculations in situations involving electric and magnetic fields, and demonstrate knowledge of the relevant basic units, vector addition, and application of basic calculus. Students will be able to assess answers to questions for plausibility.
3. Students will be able to use simple laboratory demonstrations and computer simulations to explain the basic properties of electric and magnetic fields, and electrical circuits.

Homework: Each student must solve the assigned homework problems on his/her own time. Collaboration is encouraged, but students must understand what they did on the work and be able to explain it to the instructor. If only answers are shown, no credits may be given.

Penalties of Late Work: 20 % deduction within 48 hours and no credits after then. If due is on Thursday and Friday, late work is accepted only on the following Monday.

Exams: There will be three-five midterm exams and a comprehensive final exam. Make-up exams will only be allowed for excused absences such as sickness with a doctor's note and jury duty. Only one make-up exam is allowed. The final exam must be taken.

In-class Quiz: Quizzes will be given from time to time. Quiz contents will be announced in class.

Grading Procedure and Scale

- Homework: 5-10 %, Attendance: 5-10 %, Quiz: 5-10 %
- Midterm exams: 30-40%, Comprehensive final exam: 30-40 %
A >= 90 > B >= 80 > C >= 70 > D >= 60 > F

* The scales can be adjusted by the instructor. The final grading policy will be announced before the final exam.

COURSE REQUIREMENTS/INFORMATION

Instructional Methods

This class is being taught in studio mode. Studio mode is a student-centered active learning environment that concentrates on group work. A good analogy is with a sports coach: you can't learn a sport from sitting in lecture – only by practicing it yourself with a coach present to give you instruction and feedback. Physics is no different – you can only learn by doing. The majority of class time will be focused on group activities. Activities will include conceptual work, labs, and problem solving. Activities will be completed in groups of 3-4. The instructor will assign groups. Groups will be changed 2-3 times during the semester. The instructor, learning assistant and graduate assistant will go from table to table, frequently sitting and observing your discussion. Our role is to help you ask the right questions that lead to you solving the problems yourselves. Physics education research has shown that students learn best when actively engaged in class. Studio mode has been implemented at many universities and has been found to have positive impacts on conceptual understanding and problem-solving ability.

TECHNOLOGY REQUIREMENTS

In order to access the MasteringPhysics online homework system, you will need access to the internet and a web browser. All lectures will be posted online on the MasteringPhysics website.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

1. Cell phone use is only allowed if used for class activities.
2. Eating is not allowed. However, covered drinks are allowed.
3. Attendance will be taken by seating chart at the beginning of class.
4. The instructor must be notified by email about any excused absences no later than 24 hours after the missed class. Even if you choose to notify the instructor in person, you must still follow up with email within 24 hours of the missed class. If you do not follow this policy, you will not be able to make up missed exams or turn in late work except in extreme circumstances. Excused absences include those for illness with a doctor's note, jury duty, school-sponsored events, other emergencies deemed unavoidable by the instructor.
5. You are responsible for obtaining notes and class announcements from missed classes.
6. Excessive absences may result in being dropped from the course.
7. When emailing the instructor, include the course and section number in the subject line. Include all relevant information, and write clearly, and double check your email to make sure grammar and spelling are correct (this is good advice beyond college: if you email prospective employers, and include poor spelling and bad grammar, they are unlikely to give you the time of day - get in the habit now, when the stakes are not as high).
8. You are expected to check your email at least once a day for class announcements. Emails will be sent to the email addresses you provided to MyLeo. Notify the instructor if you would prefer to receive emails at a different address.
9. Students should fully participate in class activities.
10. Students are expected to be professional and respectful and take responsibility for their learning.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

Classroom Behavior: Disorderly conduct which interferes with the normal classroom atmosphere will not be tolerated. The classroom instructor is the judge of such behavior and may instruct a disorderly student to leave the room with an unexcused absence or in more serious situations a student may be removed from the class with a failing grade.

Cheating and Other Breaches of Academic Conduct: Academic cheating, plagiarism, and other forms of academic misconduct may result in removal of the student from class with a failing grade or may in extreme cases result in suspension or expulsion from the University as described in the "Code of Student Conduct" section of the "Student's Guidebook".

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See current Student Guidebook).

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: [Netiquette http://www.albion.com/netiquette/corerules.html](http://www.albion.com/netiquette/corerules.html)

ADA Statement: Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: Rebecca.Tuerk@tamuc.edu

Website: [Office of Student Disability Resources and Services](http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Harassment Policy

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

University Title IX Contact: Michele Vieira, 903-886-5025, <mailto:TitleIX@tamuc.edu>

University resource webpages:

<http://www.tamuc.edu/facultyStaffServices/humanResources/title-ix/resources.aspx>

<http://www.tamuc.edu/campuslife/campusServices/universityPoliceDepartment/crimePrevention/sexualAssault.aspx>

University Counseling Center: 903-886-5145,

<http://www.tamuc.edu/campusLife/campusServices/counselingCenter/default.aspx>

Campus police: <mailto:upd@tamuc.edu>, call 911 in emergency situations

External resources:

Crisis center of NorthEast Texas: <http://www.cnetx.org>

Know you IX: <http://knowyourix.org>

End rape on campus: <http://endrapeoncampus.org>

Clery Center for Security on Campus: <http://clerycenter.org>

Not Alone: <https://www.notalone.gov>

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorize the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so.

Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Course Schedule

*The schedule is subject to change. All changes will be announced in the class.

				Lecture Schedule
Week 1	1/15/2018	-	1/19/2018	Electric charges and forces
Week 2	1/22/2018	-	1/26/2018	Electric charges and forces
Week 3	1/29/2018	-	2/2/2018	Electric field
Week 4	2/5/2018	-	2/9/2018	Gauss's law
Week 5	2/12/2018	-	2/16/2018	The electric potential
Week 6	2/19/2018	-	2/23/2018	Potential and field
Week 7	2/26/2018	-	3/2/2018	Potential and field
Week 8	3/5/2018	-	3/9/2018	Current and resistance
Week 9	3/12/2018	-	3/16/2018	Spring Break
Week 10	3/19/2018	-	3/23/2018	Fundamentals of circuits
Week 11	3/26/2018	-	3/30/2018	Fundamentals of circuits
Week 12	4/2/2018	-	4/6/2018	The magnetic field
Week 13	4/9/2018	-	4/13/2018	The magnetic field
Week 14	4/16/2018	-	4/20/2018	Electromagnetic induction
Week 15	4/23/2018	-	4/27/2018	Electromagnetic induction
Week 16	4/30/2018	-	5/4/2018	Review
Week 17	5/7/2018	-	5/11/2018	Final exam