

University Physics II – PHYS-2426
Department of Physical and Environmental Sciences
Fall 2016

A. COURSE INFORMATION

Course number/section: PHYS-2426.001
Class meeting times: TR 12:30-1:45pm (Lecture)
Lab Scheduled 1 day/week (Lab)
Class locations: IH-267 (Lecture)
CI-217 (Lab)
Course Websites: <http://bb9.tamucc.edu/>
<http://faculty.tamucc.edu/jspirko/Phys2426/> (Lecture Files)
<http://faculty.tamucc.edu/jspirko/Phys2Lab/> (Lab Files)

B. INSTRUCTOR INFORMATION

Instructor: Dr. Jeffery Spirko
Office location: NRC-1111
Office hours: M 1pm-3pm, W 11am-2pm, R 5pm-6pm
Telephone: 361-825-6020
e-mail: jeffery.spirko@tamucc.edu
Appointments: Email for appointments. Check my calendar (<http://tinyurl.com/spirkocal>) then suggest an open time.

C. COURSE DESCRIPTION**Catalog Course Description**

Calculus based introduction to oscillatory and wave phenomena, electricity and magnetism. The classical theory of fields will be used to study electric and magnetic phenomena, including light, and their role in modern technology. This course counts toward the natural science component of University Core Curriculum. Prerequisites: PHYS 2425 and MATH 2414 (or placement beyond MATH 2414). SMTE 0095 is a co-requisite for this course. Documented completion of this safety training is required early in the semester for continued participation in this course. Safety training given early in the semester is **required for continued participation in this course.**

Extended Course Description

Topics include static electricity, DC Circuits, magnetostatics, electromagnetic induction, AC Circuits, oscillations, waves, light, and optics.

D. PREREQUISITES AND COREQUISITES**Prerequisites**

PHYS-2425, University Physics I
MATH-2414, Calculus II

Corequisites

SMTE-0095, Physics Lab Safety Seminar, must be taken and completed early in the semester, even if the student has previously completed the Physics Lab Safety Seminar. SMTE-0095 is a short, free, online course that discloses how to be safe from the specific dangers in the laboratory. The deadline is the Census Date (10th day of Fall/Spring semesters), and **students may be dropped** from PHYS-2426 for not completing this seminar.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)

Enhanced Webassign (EWA), <http://webassign.net/> will be **accessed through Blackboard** and used for homework. EWA includes access to the eBook version of the textbook.

There are several ways of purchasing EWA access.

- **Option 1:** Students can use “Life of Edition” access from a previous semester of physics that used Serway/Jewett. Contact the instructor if EWA is not recognizing your previously paid Life of Edition access.
- **Option 2:** The textbook (see below) comes with an Access Code.
- **Option 3:** Printed access card ISBN-13 9781285858418 from Cengage should be available from the University Bookstore
- **Option 4:** Access can be purchased on the EWA website once you are logged in.

Optional Textbook(s) or Other References

(Recommended) Physics for Scientists & Engineers, 9th Edition Technology Update, by Serway & Jewett. ISBN 9781305714892 is a special discount bundle that includes a loose leaf book, an eBook, and an EWA access code (see above). Note: Students who purchase a used book on the secondary market will still have to obtain EWA access.

Supplies

- Students are expected to have internet access throughout the course.
- A non-internet-connected calculator is required. It can be a scientific calculator or graphing calculator.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Discuss how a few concise physical laws can precisely describe the physical world for a large range of time and space scales. In this course such discussions will focus mostly on Newton's laws and energy and momentum conservation.
 2. Interpret physical static and dynamic processes through physical laws.
 3. Analyze and evaluate a given physical situation in order to derive a solution to a given problem based on the laws of Physics.
 4. Solve problems and find solutions of dynamical physical processes by manipulating and analyzing numerical data.
 5. Arrive at informed conclusions regarding the dynamic of physical processes by manipulating and analyzing observable facts.
 6. Express in writing findings developed and interpreted through the course of laboratory exercises.
 7. Express graphically findings developed and interpreted through the course of laboratory exercises
 8. Work together and share responsibility to conduct satisfactorily laboratory experiments and communicate their findings
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G. INSTRUCTIONAL METHODS AND ACTIVITIES

- Students are expected to **read the textbook**. It's expensive and it provides a great explanation of many topics.
- Many topics will be discussed in lecture, where the instructor will give their own interpretation as a **supplement to the textbook**.
- Examples will be worked out in class, often by the students. **Deliberate practice** is more valuable than straight lecture.
- Laboratories will be used to **verify course concepts** and **practice scientific techniques**.
- Laboratory writing has been designed to be similar to writing for journal articles. We use an **abstract** as the core of our lab reports. Short-format "Data Reports" are used for many labs. Laboratory information will be posted on Blackboard and will be discussed in the first lab.
- In laboratory, we will spend some time going over practice problems in a recitation-style format.
- Come visit my office! It's not that far away and there's candy¹. But seriously, the instructor strongly encourages you to see him on a regular basis to clarify your understanding of the course material and to seek help in completing the homework. FREE mathematics and physics tutoring services are available via the CASA, GSSC 119, Phone 825-5933; you are strongly encouraged to make use of this service. You should also form a peer group of your classmates to collectively study and understand physics.
- Use the "Ask Your Teacher" feature on WebAssign for help with physics homework. This shows me the question you are working on so I can help you better. Show some of your work so that I can see what you are trying to do.

¹ Disclaimer: There may not be candy.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Students must complete SMTE-0095 by the beginning of the 2nd laboratory, or they will not be allowed to attend laboratories.

Letter grades will be determined from a numerical course grade using at least the usual grading scale (90-80-70-60, rounding grades to the nearest integer). If necessary in the judgement of the instructor, a slightly more lenient grading scale may be used.

Students will be assessed formally through quizzes in lab, lab reports, graded homeworks and in-class examinations.

ACTIVITY	% of FINAL GRADE
WebAssign Homework	15%
Exam 1	20%
Exam 2	20%
Final Exam	20%
Laboratory	25%

Within the laboratory, the grading is broken down as:

ACTIVITY	% of LAB GRADE
Prelab Quizzes	20%
Data Reports	50%
Formal Lab Reports	30%

I. COURSE CONTENT/SCHEDULE

An **updated calendar** will be posted on Blackboard along with other class documents.

TAMUCC Class Schedule: <http://banner.tamucc.edu/schedule/>

TAMUCC Academic Calendar: <http://www.tamucc.edu/academics/calendar/>

Fall 2016: The last day to drop a class (with a W) is November 11.

DATE	Lab	TOPIC	Read	Homework
Thu 8/25		Intro, Charges, Electrostatics	23	
Tue 8/30	0: Intro	E-Field	24	
Thu 9/1		Electric Potential	25	
Tue 9/6	1: E- Field	Capacitors	26	
Thu 9/8		Review		HW1
Tue 9/13	2: DC	Current, Resistance and Power	27	
Thu 9/15		Series and Parallel	28	
Tue 9/20	3: Series, Parallel	Kirchoff's Laws		
Thu 9/22		RC Circuits, Review		HW2

Tue 9/27	4: RC	Exam 1 - Electrostatics and DC		
Thu 9/29		Intro Magnetism	29	
Tue 10/4	5: Mag	Creating Magnetic Fields	30	
Thu 10/6		Magnetic Forces and Torques		HW3
Tue 10/11	6: e/m	Induced Voltages	31	
Thu 10/13		Inductors	32	
Tue 10/18	7: Oscilloscope	AC Circuits	33	
Thu 10/20		Series AC Circuit		
Tue 10/25	8: Transformer	Resonance		
Thu 10/27		Review		HW4
Tue 11/1	9: Oscillator	Exam 2 - Magnetism and AC		
Thu 11/3		Oscillations	15	
Tue 11/8	10: Reflection	Waves, Wave Examples, Doppler	16, 17	
Thu 11/10		Standing Waves	18	
Tue 11/15	11: Images	Intensity, Decibels, Polarization	17, 38.6	HW5
Thu 11/17		Geometric Optics Intro	35	
Tue 11/22	(no lab)	(Reading Day, no class)		
Thu 11/24		(Thanksgiving, no class)		
Tue 11/29	12: Interference	Optical Instruments	26	
Thu 12/1		More interference	37-38	
Tue 12/6	(no lab)	Review		HW6
Tue 12/13		Final Exam 11:00am-1:30pm		

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Communication

It is expected that you check your Islander email daily. I'll assume that you have read announcements and content that I send by email or Blackboard.

Attendance/Tardiness

Attendance will not be taken for a grade, but **unannounced in-class quizzes** can be given at any time. These will count toward the homework grade. If you are late, please do your best not to disturb the class. If you have to leave early, please approach me ahead of class so I don't get surprised while I'm talking.

Late Work

Homework extensions must be requested through WebAssign. There is a penalty for any late homework: 20% for up to 1 week late, 50% for over 1 week late.

Cell Phone Use

Please do not disturb the instructor or the rest of the class.
Do not talk on the phone in class or lab.

Extra Credit

Some homework questions may be marked Extra Credit on WebAssign. There may be a deadline (such as 2 days early) to receive the Extra Credit.

Missed Exam

Make-up exams cannot usually be given during the Summer session. The Exam Grade Replacement is the preferred method of make-up exams. Make-up finals will only be given if agreed to by the professor. For the final exam, makeups will only be granted in extreme excusable circumstances.

Exam Grade Replacement

If an Exam is missed for an excused reason, or if you simply do poorly on an Exam, you have a chance to prove your physics knowledge on the Final Exam. Simply put, if you do better on the Final Exam than a regular Exam, the Exam grade will be replaced with the Final Exam grade. This clause can apply to more than one regular Exam.

Lab

A detailed lab policy is contained in the Lab Manual. This includes the requirement for Laboratory Safety Training (SMTE-0095).

Lab Discipline

In the rare event that a discipline problem arises in the laboratory, the instructor can ask the student(s) to leave the laboratory. Discipline problems include student behavior disrupting the conduct of the laboratory or behavior disrespectful of the instructor or other students. The instructor will be the judge of such behavior. For the first offense the student(s) will be asked to make up the end of the lab at the end of the semester. If a student was asked more than once to leave the laboratory, no further make-up lab opportunities will be provided and the student will be given a grade of zero for this additional lab(s).

Plagiarism

You may not copy-and-paste anything without permission from the author. (A message about material being public domain, creative commons, or similar license constitutes permission.) If you do copy-and-paste, you must cite the source. Even **careless copying is defined as plagiarism** by University Procedure 13.02.99.C3.01 Academic Misconduct Cases, section 2.1.1 (http://academicaffairs.tamucc.edu/Rules_Procedures/).

K. COLLEGE AND UNIVERSITY POLICIES**• Academic Integrity (University)**

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one's own work.) In this class, academic misconduct or complicity in an act of academic

misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**

Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor's ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**

Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**

The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must be submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (<http://www.tamucc.edu/academics/calendar/>) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**

As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at <http://sci.tamucc.edu/students/GradeAppeal.html>. For assistance and/or guidance in the

grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**

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 believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

<http://disabilityservices.tamucc.edu/>

- **Statement of Academic Continuity**

In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. OTHER INFORMATION

- **Academic Advising**

The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College's Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

GENERAL DISCLAIMER

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.

Changelog

- Ver 2, Tue 11/22 is “Reading Day”. Bump lecture schedule.