

**Phys 2426 – University Physics II**  
**Department of Physical and Environmental Sciences**  
**Fall 2019**

**A. COURSE INFORMATION**

<b>Course number/section:</b>	PHYS 2426.001, .002	
<b>Class meeting time:</b>	TR 9:30-10:45am, <u>EN-108</u>	(Lecture 001)
	TR 12:30-1:45pm, <u>CI-109</u>	(Lecture 002)
	Lab Scheduled 3 days/week, <u>CI-217</u>	(All Lab Sections)
<b>Final Exam:</b>	Thu Dec 12, 8:00-10:30am	(Lecture 001)
	Thu Dec 12, 11:00-1:30pm	(Lecture 002)
<b>Course Websites:</b>	<a href="http://bb9.tamucc.edu/">http://bb9.tamucc.edu/</a>	
	<a href="http://faculty.tamucc.edu/jspirko/Phys2426/">http://faculty.tamucc.edu/jspirko/Phys2426/</a>	
	<a href="http://physlab.tamucc.edu/">http://physlab.tamucc.edu/</a> (Lab)	

**B. INSTRUCTOR INFORMATION**

<b>Instructor:</b>	Dr. Jeff Spirko
<b>Office location:</b>	NRC-1111 (Inside NRC-1100)
<b>Office hours:</b>	MTWR 2pm, TR 11am
	Live Calendar: <a href="http://faculty.tamucc.edu/jspirko/calendar.html">http://faculty.tamucc.edu/jspirko/calendar.html</a>
<b>Telephone:</b>	361-825-6020
<b>e-mail:</b>	<a href="mailto:jeffery.spirko@tamucc.edu">jeffery.spirko@tamucc.edu</a> (preferred over phone calls)
<b>Appointments:</b>	Email for appointments. Check calendar and 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.

**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

**Corequisite:**

- SMTE-0095 – Physics Lab Safety Seminar. Required every semester for lab-based courses, even if the student has previously completed it before. 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 (10<sup>th</sup> day of Fall/Spring semesters, first

Sunday of Summer), and **students will not be allowed in lab and will get zeros for missed labs** for not completing this seminar. It's free and it takes less than a half hour; just do it.

## E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**

### **Required Textbook(s)**

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

There are several ways of purchasing WebAssign access.

- **Option 1:** Purchase online from WebAssign, possibly using Cengage Unlimited.
- **Option 2:** The new textbook (see below) comes with an Access Code.
- **Option 3:** Printed access card from Cengage are available at the Bookstore.

Physics for Scientists & Engineers, 10th Edition, (2019) by Serway & Jewett.

- (Recommended) New printed copy.
  - Students who purchase a used book still have to obtain WebAssign access!
- (Alternative) Cengage Unlimited has a cheap print rental available.
- (Alternative) Digital online access comes with WebAssign.

### **Optional Textbook(s) or Other References**

(Recommended) The Bookstore has a special discount bundle that includes a loose leaf book, an eBook, and a WebAssign access code (see above). Note: Students who purchase a used book on the secondary market will still have to obtain WebAssign 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 demonstrate mastery of competencies in the following areas:

### **Critical Thinking:**

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 electromagnetism, waves, and optics.
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.

**Empirical and Quantitative Skills:**

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.

**Communication:**

6. Express in writing findings developed and interpreted through the course of laboratory exercises.
7. Write an Abstract which provides a concise written summary of laboratory findings and interpretations.
8. Express graphically findings developed and interpreted through the course of laboratory exercises

**Teamwork:**

9. Work together and share responsibility to conduct satisfactorily laboratory experiments and communicate their findings

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**G. INSTRUCTIONAL METHODS AND ACTIVITIES**

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- 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, sometimes 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.
- Detailed laboratory information is available at <http://physlab.tamucc.edu/TAMUCCPHYSLabPolicy.pdf>.
- Come visit my office! It's not that far away and there's candy.<sup>1</sup> 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.

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<sup>1</sup> Disclaimer: There may not be candy.

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.

## **H. MAJOR COURSE REQUIREMENTS AND GRADING**

Students must complete SMTE-0095 by the beginning of the 2nd week of class, 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.

<b>ACTIVITY</b>	<b>% of FINAL GRADE</b>
WebAssign Homework	15%
Exam 1	20%
Exam 2	20%
Final Exam	20%
Laboratory	25%

Within the laboratory, the grading is broken down as:

<b>ACTIVITY</b>	<b>% of LAB GRADE</b>
Prelab Quizzes	20%
Data Reports	50%
Formal Lab Reports	30%

Detailed laboratory information is available at: <http://physlab.tamucc.edu/>.

**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/>

TAMUCC Final Exam Schedule:

[https://registrar.tamucc.edu/Register%20for%20Classes/Final\\_Exams.html](https://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html)

<b>Week</b>	<b>Labs</b>	<b>TOPICS</b>	<b>Reading</b>	<b>Homework</b>
1, 2, 3	0: Intro	Intro, Charges, E-Field	22, 23	
	1: Intro, E- Field	Electric Potential, Energy	24	
	2: DC	Capacitors	25	
		Current, Resistance and Power	26	
4, 5	3: Series, Parallel	Series and Parallel	27	HW1
	4: RC	Kirchoff's Laws		
		RC Circuits		
		<b>Exam 1 - Electrostatics and DC (Thu)</b>		HW2
6, 7, 8	5: Mag	Intro Magnetism	28	
	6: e/m	Creating Magnetic Fields	29	
	7: Oscilloscope	Magnetic Forces and Torques		
		Induced Voltages, Inductors	30, 31	HW3
9, 10, 11	8: Transformer	AC Circuits	32	
	9: Oscillator	Series AC Circuit, Resonance		
	10: Reflection	<b>Exam 2 - Magnetism and AC (Wed)</b>		HW4
		Oscillations	15	
		Waves, Wave Examples, Doppler	16	
		Standing Waves	17	
12, 13, 14, 15	11: Images	Intensity, Decibels, Polarization	15, 37.6	HW5
	(No Lab Week of Thanksgiving)	Reflection and Refraction	34	
	12: Interference	Geometric Optics Intro	35	
		Optics Instruments		
		Physical Optics, Wave interference	36-37	HW6
<b>Final</b>		<b>Final Exam – Comprehensive</b>		

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.

### **Exam Grade Replacement**

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

### **Homework**

Do your homework BEFORE the exam. Make sure you know how to solve each problem **from basic equations on the equation sheet**, without following any solution guide. Homework questions that are completed 3 days ahead of the due date will receive 25% extra credit. Late homework (for partial credit) is only allowed via WebAssign Extensions. There are two kinds of homework extensions:

- Automatic Extensions of up to 3 days are allowed for 80% credit.
- Manual Extensions of up to 3 days are allowed for 50% credit. I must receive the request via WebAssign (not email), and I will grant it when I deal with business correspondence. Only two Manual Extensions may be requested.

All extensions close by midnight on the day of the Final.

### **Attendance/Tardiness**

Attendance is necessary to do well in the class. Attendance will be **recorded occasionally** and counted as homework points. 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.

### **Missed Quiz/Exam**

Make-up quizzes will be given only under unavoidable circumstances. The Grade Replacement is the preferred method of make-up quizzes. Make-up finals will only be given in extreme excusable circumstances, and if agreed to by the professor.

### **Cell Phone / Laptop Use**

Please do not disturb the instructor or the rest of the class.

Do not talk on the phone in class or lab.

### **Laboratory**

- A detailed lab policy is located online at:  
<http://physlab.tamucc.edu/TAMUCCPHYSLabPolicy.pdf>  
This includes the requirement for Laboratory Safety Training (SMTE-0095).
- If a student has a valid excuse to miss lab, there are 3 methods to makeup the grade and avoid getting a zero (0) for the lab:

- **Quick make-up - Attend another lab section**, with the permission of the instructor (see Lab Policy). This privilege is not for convenience, and it may be limited if it gets abused.
- **Delayed makeup – Lab makeup day**. One (1) lab may be made up on makeup day. You **MUST** ask your instructor by the week before to use this method, as equipment must be set up.
- **Exempted**. The lab instructor may exempt the report grade and replace the quiz grade with the Math quiz grade (from the first day).
- **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 quote or use knowledge from a source in a written project, 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/](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)**

I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. *Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.* Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 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](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 and by posting on the course website.

#### **Changelog**

- Ver 1, 2019-07-18, Original Version