Texas A&M International University

Department of Engineering, Mathematics and Physics

PHYS 2325-201

Spring

TR 12:30 pm – 1:45 am BVC 202

Instructor: Dr. Qingwen Ni

Office: BVC 373C

Office Hours: M&W 5:00 pm – 5:30 pm
T&R 10:00 am – 11:30 am, and 2:30 pm – 3:30 pm
or by appointment

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Course Description: A calculus-based treatment of the fundamentals of classical mechanics, sound, fluid mechanics and heat. Topics include one and two dimensional motion, forces and Newton's Laws, momentum conservation, energy conservation, rotational dynamics, angular momentum, waves, simple harmonic motion, kinetic theory, calorimetry and thermodynamics. Prerequisite: MATH 2413 or equivalent. Must be taken concurrently with PHYS 2125.

Student Learning Outcomes: Upon successful completion of the course, the student will be able to

1. Differentiate between a vector quantity and a scalar quantity.
2. State Newton's three laws of motion and give everyday examples of each law.
3. Describe the work-energy theorem and apply it to solve physics problems.
4. State the law of conservation of energy and apply it to solve physics problems.
5. Describe the law of conservation of momentum and apply it to solve physics problems.
6. Work in teams on a research project and submit a written report that clearly describes the problem and findings.

Core-Curriculum Learning Outcomes (CCO's)

1. Critical Thinking: includes creative thinking, innovation, inquiry and analysis, evaluation, and synthesis of information (SLOs 2, 3, 4, 5, and 6).

2. Communication Skills: Students will demonstrate their ability to communicate effectively by using written communication (SLO 6).
3. Empirical and Quantitative Skills: Empirical and Quantitative Skills: includes the manipulation and analysis of numerical data or observable facts resulting in informed conclusions (SLOs 3, 4, and 5).
4. Teamwork: includes the ability to work effectively with others to support a shared goal (SLO 6).

Textbook: PHYSICS FOR SCIENTISTS & ENGINEERS WITH MODERN PHYSICS Fourth Edition by Giancoli, D.C.; Pearson Prentice Hall.

References: Fundamentals of Physics, 8th ed., by Halliday, D., R. Resnick, and J. Walker, 2008, John Wiley & Sons, Inc.
Physics for Scientists and Engineers, 6th ed., by Serway, R.A., and Jewett, Jr., J.W. 2004, Thomson Brook/Cole Publisher.

Course Goal: The goal is to help students develop a conceptual understanding of physics principles. Developing a higher-order-thinking and good problem-solving technique starts with a firm grasp of the concepts and how they fit together to provide a coherent description of the physical world.

Mid-semester: **Mar. 8**

Last day to drop without record is April 18

Spring Break: **Mar. 11- 16**

Class Performance:

Grading:

Exam 1:	20%
Exam2:	20%
Final Exam:	30%
Homework:	10%;
Research project:	20%.

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Final Grade: A>=90%, B>=80%, C>=70%, D>=60%, F<60%

There will be no makeups in general. Makeup exams are given only under certain extenuating circumstances and may be more difficult than the regularly scheduled exams.

Late Policy:

Homework sets are due the chapter finished. Homework must be turning on time, with the singular exception of documented excuses. Late homework will be docked 50% of the face value for each day of tardiness. If you are going to miss an exam, you must notify me in advance (preferably one week) so alternative arrangements can be made. If you miss an exam which is not excused, a grade of zero will have to be assessed for that particular exam. You must take the final exam in order to pass the course.

Classroom Behavior The college of Arts and Sciences encourages classroom discussion and academic debate as an essential intellectual activity. It is essential that students learn to express and defend their beliefs, but it is also essential that they learn to listen and respond respectfully to others whose beliefs they may not share. The College will always tolerate diverse, unorthodox, and unpopular points of view, but it will not tolerate condescending or insulting remarks. When students verbally abuse or ridicule and intimidate others whose views they do not agree with, they subvert the free exchange of ideas that should characterize university classroom. If their actions are deemed by the professor to be disruptive, they will be subject to appropriate disciplinary action, which may include being involuntarily withdrawn from the class.

Plagiarism: Plagiarism is the presentation of someone else's work as your own. **1)** When you borrow someone else's facts, ideas, or opinions and put them entirely in your own words, you must acknowledge that these thoughts are not your own by immediately citing the source in your paper. Failure to do this is plagiarism. **2)** When you also borrow someone else's words (short phrases, clauses, or sentences), you must enclose the copied words in quotation marks as well as citing the source. Failure to do this is plagiarism. **3)** When you present someone else's paper or exam (stolen, borrowed, or bought) as your own, you have committed a clearly intentional form of intellectual theft and have put your academic future in jeopardy. This is the worst form of plagiarism.

Here is another explanation from the 2010, sixth edition of the *Manual of The American Psychological Association* (APA):

Plagiarism: Researchers do not claim the words and ideas of another as their own; they give credit where credit is due. Quotations marks should be used to indicate the exact words of another. *Each* time you paraphrase another author (i.e., summarize a passage or rearrange the order of a sentence and change some of the words), you need to credit the source in the text.

The key element of this principle is that authors do not present the work of another as if it were their own words. This can extend to ideas as well as written words. If authors model a study after one done by someone else, the originating author should be given credit. If the rationale for a study was suggested in the Discussion section of someone else's article, the person should be given credit. Given the free exchange of ideas, which is very important for the health of intellectual discourse, authors may not know where an idea for a study originated. If authors do know, however, they should acknowledge the source; this includes personal communications. (pp. 15-16)

"Should a faculty member discover that a student has committed plagiarism, the student will receive a grade of "F" for the course, and the matter will then be referred to the Executive Director of Student life for possible disciplinary action."

Use of Work in Two or More Courses: You may not submit work completed in one course for a grade in a second course unless you receive explicit permission to do so by the instructor of the second course.

Copyright: "The Copyright Act of 1976 grants to copyright owners the exclusive right to reproduce their works and distribute copies of their work. Works that receive copyright protection include published works such as a textbook. Copying a textbook without permission from the owner of the copyright may constitute copyright infringement. Civil and criminal penalties may be assessed for copyright infringement. Civil penalties include damages up to $100,000; criminal penalties include a fine of up to $250,000 and imprisonment."

Students with Disabilities Texas A&M International University seeks to provide reasonable accommodations for all qualified persons with disabilities. This University will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal education opportunity. It is the student's responsibility to register with the Director of Student Counseling and to contact the faculty member in a timely fashion to arrange for suitable accommodations.

Incompletes Incompletes are discourages and are assigned only under extenuating circumstances. In fairness to those students who complete the course as scheduled, under no circumstances will an incomplete ("I") be changed to an "A" unless the student has experienced a death in the immediate family or has a written medical excuse from a physician.

Independent Study Courses Independent Study (IS) courses are offered only under exceptional circumstances. Required courses intended to build academic skills may not be taken as IS (e.g., clinical supervision and internships). No student will take more than one IS course per semester. Moreover, IS courses are limited to seniors and graduate students. Summer IS course must continue through both summer sessions.

Student Responsibility for Dropping a Course before the drop date.

Final Examination is comprehensive.

All students must obtain a TAMIU e-mail address.

PHYS 2325 Class Schedule

Week of	**Date**	**Tuesday**	**Date**	**Thursday**
1/21	1/22	Ch 1	1/24	Ch2
1/28	1/29	Ch 2	1/31	Ch 3
2/4	2/5	Ch 4	2/7	Ch 4/Ch 5
2/11	2/12	Ch 5	2/14	Ch 6
2/18	2/19	Ch 6/Ch 7	2/21	**Exam 1**
2/25	2/26	Ch 7/Ch 8	2/28	Ch 8
3/4	3/5	Ch 9	3/7	Ch 9
3/11	**Spring Break**			
3/18	3/19	Ch 10	3/21	Ch 10/Ch 11
3/25	3/26	Ch 11/Ch 12	3/28	Ch 12/Ch13
4/1	4/2	Ch 13	4/4	**Exam 2**
4/8	4/9	Ch 14	4/11	Ch 14/ Ch 15
4/15	4/16	Ch 15/Ch 16	4/18	Ch 16/Ch 17
4/22	4/23	Ch 17	4/25	Ch 18
4/29	4/30	Ch 19	5/2	Ch 20
5/6	5/7	Review (last day of class)		
5/13	5/14	**Final Exam (11:00 am)**		

Syllabus is subject to change.