

Brazosport College

Syllabus for PHYS 2325 – University Physics I - Mechanics and Heat

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I. COURSE DESCRIPTION

PHYS 2325 – University Physics I - Mechanics and Heat CIP 4008015203

The first of a two-semester sequence of calculus-based physics. Topics include the principles of kinematics and dynamics (motion, forces, energy, momentum) for both linear and rotational motion, thermodynamics, properties of materials, and wave motion. **Credit Hours: 3** (3 lecture, 0 lab)

Kenan Caymaz

Gary Hicks

Jeff Detrick

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A. Prerequisite: Completion of or concurrent enrollment in **MATH 2413** or approval of the division chair.

Required skill Level: College-level reading, writing and math.

II. COURSE OBJECTIVES

The general objectives of this physics course are twofold: to provide the student with a clear and logical presentation of the basic concepts and principles of physics, and to strengthen an understanding of these concepts and principles through a broad range of interesting applications. In order to meet these objectives, emphasis is placed on sound physical arguments and discussions of everyday experiences. At the same time, an attempt is made to motivate the student through practical examples that demonstrate the role of physics in other disciplines. Additionally, Physics 2425 is a problem-solving course, and a student's progress is demonstrated by the ability to solve problems mathematically (using algebra, trigonometry, and calculus), and not just to quote facts, laws, or formulas.

III. STUDENT LEARNING OUTCOMES

Educational Objective	Method of Assessment
1. Apply the kinematic equations and Newton's laws of motion to mechanical systems.	The average for homework grades for chapters 1, 2, 3, 4, and 5 and Test 1 must be 70% or greater.
2. Apply the concepts of work and energy to mechanical systems.	The average for homework grades for chapters 6 and 7 and test 2 must be 70% or greater.
3. Apply the concepts of momentum and impulse to mechanical systems involving the interactions of two objects.	The average for homework grades for chapter 8 and test 2 must be 70% or greater.
4. Apply the kinematic equations and Newton's laws of motion to mechanical systems undergoing circular motion as well as the conditions for static equilibrium.	The average for homework grades for chapters 10 and 11 and test 3 must be 70% or greater.
5. Apply the equations of Simple Harmonic Motion and wave motion to mechanical systems (including sound waves).	The average for homework grades for chapters 12, 13, and 14 and test 4 must be 70% or greater.
6. Apply the concepts of properties of materials (solid, liquid, and gas states of matter) to physical systems, including such ideas as pressure, density, Archimedes' Principle (buoyant force), and Bernoulli's principle.	The average for homework grades for chapter 15 and test 4 must be 70% or greater.
7. Apply the equations for thermal expansion, specific heat, heat transfer, the Gas Law, and the Laws of Thermodynamics to thermodynamic systems.	The average of homework grades for chapters 16, 17, and 18 and test 5 must be 70% or greater.

IV. TEXTBOOK OR COURSE MATERIAL INFORMATION

A. Textbook

1. No textbook required material provided by instructor.

A hard-copy of the textbook is not required. Homework is done through an online service called WebAssign. Students are required to purchase an access code. This access code allows the student to create a personal account in WebAssign which includes an e-book copy of the textbook. Students do not need to purchase the access code prior to the start of the class.

Required course materials may be available at the Brazosport College bookstore, on campus or online at <http://brazosport.edu/bookstore/home.html>. A student of this institution is not under any obligation to purchase a textbook from the college bookstore. The same textbook is/may also be available from an independent retailer, including an online retailer.

For Distance Education Courses include the following: Contact the Brazosport College Bookstore with a credit card for course materials. Phone: 979-230-3651. Fax: 979-230-3653. Email: bookstore@brazosport.edu. Website: <http://brazosport.edu/bookstore/home.html>

B. Course Outline:

This is a sample outline which may vary with individual instructors. It will also vary on whether the course is a summer course or a fall/spring course. Students should contact their instructor of the outline of the course they are taking.

Aug. 25	Ch. 1, 2	Oct. 15	Ch. 10
27	2	22	10
Sep. 01	3	22	11
03	3	27	Test 3
08	4	29	12, 13
10	4	Nov. 03	13, 14
15	5	05	15
17	5	10	15
22	Test 1	12	Test 4
24	6	17	16
29	7	19	17
Oct. 01	7	Dec. 01	18
06	8	03	18
08	8	08	Final Exam
13	Test 2		(Test 5)

Topics for each chapter:

- Chapter 1: Mathematics review.
- Chapter 2: Motion in one dimension.
- Chapter 3: Motion in two dimensions.
- Chapter 4: Newton's laws of motion.
- Chapter 5: Applications of Newton's laws.
- Test 1 covers chapters 1, 2, 3, 4, & 5.
- Chapter 6: Work and energy.
- Chapter 7: Potential Energy.
- Chapter 8: Momentum.
- Test 2 covers chapters 6, 7, & 8.
- Chapter 10: Rotational motion.
- Chapter 11: Gravity.
- Test 3 covers chapters 10 & 11.
- Chapter 12: Oscillatory motion.
- Chapter 13: Mechanical waves.
- Chapter 14: Superposition and standing waves.
- Chapter 15: Fluid mechanics.
- Test 4 covers chapters 12, 13, 14, & 15.
- Chapter 16: Temperature and the kinetic theory of gases.
- Chapter 17: Energy in thermal processes, first law of thermodynamics.
- Chapter 18: Heat engines, second law of thermodynamics.
- Test 5 covers chapters 16, 17, & 18.

Important Semester Dates:

Last Day to Withdraw from Classes– Check BC Academic Calendar at
<http://catalog.brazosport.edu/index.php>

Office Hours: See Faculty Schedule (last page)

V. STUDENTS WITH DISABILITIES

Brazosport College is committed to providing equal education opportunities to every student. BC offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. For student to receive any accommodation, documentation must be completed in the Office of Disability Services. Please contact Phil Robertson, Special Populations Counselor at 979-230-3236 for further information.

VI. TITLE IX STATEMENT

Brazosport College faculty and staff are committed to supporting students and upholding the College District's non-discrimination policy. Under Title IX and Brazosport College's policy FFDA (Local), discrimination based on sex, gender, sexual orientation, gender identity, and gender expression is prohibited. If you experience an incident of discrimination, we encourage you to report it. While you may talk to a faculty or staff member at BC, please understand that they are "Responsible Employees" and must report what you tell them to college officials. You can also contact the Title IX Coordinators directly by using the contact information below. Additional information is found on the Sexual Misconduct webpage at www.brazosport.edu/sexualmisconduct.

VII. ACADEMIC HONESTY

Brazosport College assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication, and may, at a minimum, result in F, in this course. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services. Please refer to the Brazosport College Student Guide for more information. This is available online at <http://brazosport.edu/students/for-students/student-services/>.

VIII. ATTENDANCE AND WITHDRAWAL POLICIES

Class attendance contributes to your final grade, but you must attend class to successfully complete the course. If you are unable to complete this course, you must complete and submit a withdrawal form with the registrar's office. If the student decides to drop out of the class it is the responsibility of the student to initiate a withdrawal before the withdrawal deadline in order to get a "W" on their transcript. If this is not done the student will receive a grade based on test grades and class grades earned during their attendance and absence (i.e. zeros on all missed materials, exams, skills tests, and final exam).

IX. COURSE REQUIREMENTS AND GRADING POLICY TESTING MAKE-UP POLICY

There will be five tests, the average of which will count 50% of the course grade. (The final exam is not comprehensive; it is simply test 5.) Homework is assigned for each chapter, and your average homework grade will count 50% of the course grade. Your grade is determined according to the following scale: $90\% \leq A \leq 100\%$; $80\% \leq B < 90\%$; $70\% \leq C < 80\%$; $60\% \leq D < 70\%$; $0 \leq F < 60\%$.

Grades are assigned as follows:

Grade	Final Average
A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

A. Testing

Tests occur at the end of groups of chapters, and the test's problems are similar to problems students have worked for homework. Tests are done in class, not online. A hand-held calculator is allowed for the test, but not a device that is internet-capable (smartphone or tablet computer). The exact number of tests, and their content, can vary by instructor.

B. Assignments

Homework for each chapter is assigned and submitted online through WebAssign (<http://www.webassign.net>). Since we are progressing through the semester according to a schedule, it is important that you complete the homework on time. Each homework assignment has a due date, and is posted online with each assignment. (As a general rule, a chapter's homework is due the day we start the next chapter.) If you need help getting started on a problem, finishing a problem, or just want reassurance, then call me, email me, or come visit me in my office. You will not interrupt my business... you are my business. The Student Success Center also offers free tutoring – ask them for their schedule.

C. Make-Up Policy

If you are absent, contact your instructor (in person, by phone, by email) as soon as you are able; do not wait until the next class meeting. You are responsible for any assignments given during your absence. If your absence occurs during a test, then a make-up test can be given at the discretion of the instructor (usually only for excused absences).

X. STUDENT CONDUCT STATEMENT

Students are expected to be aware of and follow the Brazosport College Student Code of Conduct. Students have violated the Code if they “fail to comply with any lawful directions, verbal or written, of any official at BC.” Lawful directions include precautions and requirements taken to prevent the spread of COVID-19 at Brazosport College. Students who do not follow safety requirements, including the wearing of a mask, may be removed from class by their instructor and referred to the Dean of Student Services.

XI. COVID-19 STATEMENT

At Brazosport College, all of us, including faculty, staff, and students, share a common goal this fall semester, to keep our classes running in the safest manner possible and avoid any disruption to your progress in achieving your educational and career goals. To that end, we ask and encourage you to conduct yourself in the following manner while on campus this semester:

- Every day, perform a self-health check prior to coming to campus and stay home if sick.
- To the greatest extent possible, maintain your distance between you and other students, faculty, and staff while on campus.
- Wear a properly fitted face covering over your mouth and nose while indoors on campus. If you do not have a mask, they will be available to you in all classrooms this fall.
- Practice good hygiene, washing your hands regularly and/or using hand sanitizer.
- The most effective way to protect yourself from Covid-19 is through vaccination. The vaccine is readily available and at no cost to you. Vaccine information and availability can be found at <https://brazosport.edu/coronavirus/vaccine/>.

If at any time this semester you begin to experience Covid symptoms, or if you are exposed to someone who has tested positive for Covid-19, please take the following steps:

- Stay home if you're feeling sick and minimize your contact with others.

- Alert the College by completing the Covid-19 Exposure Report Form online at <https://brazosport.edu/coronavirus/report/>. Be sure to provide accurate contact information, including a working phone number that you will answer.
- After submitting the report, you will be promptly contacted by a member of our Rapid Response Team, who will ask you some specific questions about your situation and provide you with guidance moving forward.
- If it is determined that you should not come to class, your instructor will be notified. **Please know that your instructor will consider course adjustments and potential make-up work only if your case has been reported to Brazosport College, and they've been notified by our response team.** Your instructor will work with you to determine how to manage any make-up work.

The Community Health Network (CHN) Clinic at Brazosport College (located in BC Central B-Wing) is scheduled to be open from 8 AM to 6 PM Tuesday through Thursday during the Fall 2021 semester. While walk-ins are available, your visit will be easier if you pre-register by creating an account at www.mychn.org. In addition to providing health and behavioral services, CHN also provides COVID vaccinations and testing. All insurance is accepted, and healthcare is provided on a sliding scale including no cost for those who need it.

Throughout the semester, please regularly check the College's Covid-19 information page at <https://brazosport.edu/coronavirus/>, where the latest updates and guidelines will be posted. As members of the BC community, all of us share a responsibility to each other to be as safe as possible.

XII. CAMPUS CLOSURE STATEMENT

Brazosport College is committed to the health and safety of all students, staff, and faculty and adheres to all federal and state guidelines. The College intends to stay open for the duration of the semester and provide access to classes and support services on campus in the safest way possible. The College will also comply with lawful orders given by applicable authorities, including the Governor of Texas, up to and including campus closure. It is possible that on campus activities may be moved online and/or postpone if such orders are given.

XIII. STUDENT RESPONSIBILITIES

Students are expected to fully participate in this course. The following criteria are intended to assist you in being successful in this course:

1. Understand the syllabus requirements
2. Use appropriate time management skills
3. Communicate with the instructor
4. Complete course work on time, and
5. Utilize online components (such as Desire2Learn) as required.

Have a dedicated notebook for this physics class. A 3-ring loose-leaf notebook is best, though you might prefer a spiral-bound notebook (but read on...). Bring it each day to class and take notes of the day's discussion. Additionally, you will be given "handout pages" with extra discussions and example problems. (Inserting these handout pages into your own notes when you are taking notes in a spiral-bound notebook becomes a problem.)

Video or audio recording of class or lab activities is prohibited, unless specific permission is given by the instructor.

Please do not bring food into the classroom (drinks are OK).

XIV. OTHER STUDENT SERVICES INFORMATION

Information about the Library is available online at <http://brazosport.edu/students/for-students/places-services/library/about-the-library/> or by calling 979-230-3310.

For assistance with online courses, an open computer lab, online and make-up testing, audio/visual services, and study skills, visit Learning Services next to the Library, call 979-230-3253, or visit <http://brazosport.edu/students/for-students/places-services/learning-services/>.

For drop-in math tutoring, the writing center, supplemental instruction and other tutoring including e-tutoring, visit the Student Success Center, call 979-230-3527, or visit <http://brazosport.edu/students/for-students/student-success-center/math-center/>.

To contact the Physical Sciences and Process Technologies Department call 979-230-3618.

The Student Services provides assistance in the following:

Counseling and Advising	979-230-3040
Financial Aid	979-230-3294
Student Life	979-230-3355

To reach the Information Technology Department for computer, email, or other technical assistance call the Helpdesk at 979-230-3266.



Get the information you need – when you need it. Click <http://geni.us/BRAZO> to install **BC Connect** on your mobile device to receive reminders, explore careers, map your educational plan, be in the know about events, find out about scholarships, achieve your goals and much more.

BRAZOSPORT COLLEGE FACULTY SCHEDULE

SEMESTER: Fall 2021

Format E-
mail
Address

INSTRUCTOR: Kenan Caymaz

OFFICE: ONLINE

EMAIL: kenan.caymaz@brazosport.edu

PHONE: 630-808-1570 ©

MONDAY				
Start	End	Class/Location	Room	Hrs
10:00 AM	12:00 PM	OFFICE HOURS	ONLINE	2.00
12:00 PM	3:00 PM	CTEC1401.80	ONLINE	3.00
3:00 PM	5:00 PM	CTEC1401L.80	HS 207	2.00
6:00 PM	8:30 PM	PHYS2325.40	ONLINE	2.50
				9.50

WEDNESDAY				
Start	End	Class/Location	Room	Hrs
10:00 AM	12:00 PM	OFFICE HOURS	ONLINE	2.00
1:00 PM	4:30 PM	OFFICE HOURS	ONLINE	3.50
4:30 PM	5:30 PM	PHYSICAL ACTIVITY		1.00
6:00 PM	10:00 PM	PHYS2125.40	HS 207	4.00
				10.50

FRIDAY				
Start	End	Class/Location	Room	Hrs
				0.00

TUESDAY				
Start	End	Class/Location	Room	Hrs
8:00 AM	9:30 AM	PHYS1301.40	ONLINE	1.50
9:30 AM	11:30 AM	OFFICE HOURS	ONLINE	2.00
1:00 PM	4:00 PM	PHYS1101.40	ONLINE	3.00
4:30 PM	5:30 PM	PHYSICAL ACTIVITY		1.00
6:00 PM	10:00 PM	PHYS2125.40	HS 207	4.00
				11.50

THURSDAY				
Start	End	Class/Location	Room	Hrs
8:00 AM	9:30 AM	PHYS1301.40	ONLINE	1.50
9:30 AM	11:30 AM	OFFICE HOURS	ONLINE	2.00
				3.50

TOTAL
HOURS
35.00

OTHER OFFICE HOURS AVAILABLE
BY APPOINTMENT