



General Physics I (PHYS 115) Spring 2023

Course Number: PHYS 115-01
Course Title: General Physics I
Class Meeting Times: UTR 08:00 AM-08:50 AM
Instructional Modality: Onsite
Class Location: B312
Section: 01

Instructor: Dr. Ali Al-Zu'bi
Office Location: B425
Office Phone: 3732
Email: aalzubi@auk.edu.kw
Office Hours: Sun-Tue-Thu
01:00 PM-03:00 PM

AUK Mission Statement:

The American University of Kuwait is a liberal arts institution dedicated to teaching, learning, and scholarship. The University offers programs that provide students with the knowledge and skills necessary for lifelong learning and professional success. AUK enriches society by fostering an environment that encourages critical thinking, effective communication, personal growth, service, and leadership.

1- Basic Course Information:

Catalog Course Description:

An introductory calculus-based course covering motion in one-dimension, projectile motion, Newton's laws of force, concepts of work, energy and momentum, circular motion and rotational dynamics with laws of conservation of energy and angular momentum. A required laboratory that offers experiments in mechanics, momentum, work, and energy is part of this course.

Prerequisite: MATH 201. **Con-Current:** PHYS 115L
Credit hours: 3.00
Lecture hours: 39

Course Learning Outcomes (CLOs): Upon successful completion of the course, students will be able to:

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|--|
| CLO1: Understand basic concepts of physics listed in course content (Mechanics). |
| CLO2: Communicate these concepts clearly, develop problem solving skills and critical thinking. |
| CLO3: Use appropriate mathematical techniques (Algebra, Trigonometry and Calculus) and the laws of physics to obtain quantitative solutions to problems in Mechanics. |
| CLO4: work together in collaborative groups to perform experiments, gather and interpret data, perform calculation, evaluating results and reach conclusions. |

COURSE TOPICS

Vectors: Coordinates systems. Vectors and scalar quantities, Basic vector arithmetic. Components of vectors and unit vectors.

Motion in One Dimension: Position, velocity, and speed of a particle. Instantaneous velocity and speed. Acceleration. Motion Diagrams, Particle under constant acceleration. Freely falling objects. Kinematics equations.

Motion in Two Dimensions: Position, velocity, and acceleration vectors. Two-dimensional motion with constant acceleration. Projectile motion. Uniform circular motion. Tangential and radial acceleration.

The Laws of Motion: The concept of force. Newton's laws of motion. Forces of friction.

Energy of a System: Work done by a constant and a varying force. Work-Kinetic energy theorem. Gravitational and elastic Potential energies.

Conservation of Energy: Conservation of total energy, and Power.

Linear Momentum and Collisions: Linear momentum. Collisions in one and two dimensions.

Rotation of Rigid Object: Angular position, velocity, and acceleration. Rigid object under constant angular acceleration. Angular and translational quantities. Torque.

Course Delivery/Methodology:

For this course we will be meeting in-person 3 days per week and material will be presented through lectures. All lecture slides will be posted on Moodle, which can be accessed at <https://lms.auk.edu.kw/course/view.php?id=3554>. You will be completing the following evaluations for this course:

1. Correct use of concepts, laws, formulas, and principles.
2. Appropriate use of language, terminology.
3. Accuracy of language, calculations, and simplifications.
4. Adequate interpretation of solutions to problems.
5. Presentations of tests and assignments.

To successfully complete this course, you must avoid missing any assessment and stick to the AUK student conduct code. It is your responsibility to keep following the Moodle page and stick to the posted due dates and times.

Textbook:

University Physics, **15th Edition Global**, Hugh D. Young; Roger A. Freedman, Pearson, 2020.

Other Resources:

- Physics Library ([Khan Academy](#))
- Other textbooks can be found in the [AUK Library Catalog](#)

2- Evaluations and Grading:

| Evaluation Type | Weight | Date |
|------------------|-------------|------------------|
| Homework (MyLab) | 20% | Weekly |
| Quizzes | 20% | four Quizzes |
| Midterm Exam | 30% | |
| Final Exam | 30% | Final Exams week |
| Total | 100% | |

Note: To pass the course, your grade should be at least 70%.

Homework Policy:

- Homework will be assigned Online (MyLab).
- You do need to access the link from your Moodle account to register. The access code can be bought directly from the eBook Store in your student account.
- You have **five attempts for each question**.
- You will have at least **seven days to complete each homework**, you are responsible to keep track of the assignments' due dates. **No time extensions will be given.**
- Completing the assigned homework is vital to your understanding of the subject material.
- You should make every effort to complete the homework assignments and seek help with problems you have not been able to solve.
- **At the end of the semester** the grades of all HomeWorks will be **averaged to 20%**.

Quizzes Policy:

- Closed book.
- ONSITE
- 30 minutes time.
- Calculators are ALLOWED.

Exams Policy:

Midterm:

- Closed book.
- ONSITE
- 50 minutes time.
- Calculators are ALLOWED.

Final:

- Closed book
- ONSITE
- 120 minutes time.
- Calculators are ALLOWED.

Evaluation Standards:

Student evaluation will be based on the following performance criteria:

- Correct use of concepts, laws, formulas, and principles.
- Appropriate use of language, terminology, and nomenclature
- Accuracy of language, calculations, and simplifications.
- Adequate interpretation of solutions to problems.

Important notices:

- Calculators are **ALLOWED** on Quizzes, Midterm, and Final exam.
- Messy, hard to follow work will not be graded.
- Your name and student ID must be written on the work to be submitted. **No name = No grade.**
- Missing an assessment will result in a grade of zero, unless official documentation is provided.
- Any questions about the grading of these exams must be raised with the instructor within five workdays of their return.
- Students should be able to explain their solutions to the professor in case they are asked to.
- Failing to explain what is written in your exam may affect the grade.

Makeup Policy:

Unless proper official excuse is provided, any missed assessment will result in a ZERO mark (0). A missed Final Exam will result in a FAIL for not attending (FN).

AUK Official Grading Scale:

| Letter Grade | Percentage | University Points |
|--------------|------------|-------------------|
| A | 94-100 | 4.0 |
| A- | 90-93 | 3.7 |
| B+ | 87-89 | 3.3 |
| B | 84-86 | 3.0 |
| B- | 80-83 | 2.7 |
| C+ | 77-79 | 2.3 |
| C | 74-76 | 2.0 |
| C- | 70-73 | 1.7 |
| D+ | 67-69 | 1.3 |
| D | 64-66 | 1.0 |
| D- | 60-63 | 0.7 |
| F | 0-59 | 0.0 |

3- AUK Attendance Policy:

The American University of Kuwait recognizes that class attendance is an important element of students' classroom success. Students are expected to attend all classes, laboratories, and/or required

fieldwork. Because excessive absences prevent students from receiving full course benefits and disrupt orderly course progress, AUK has established the following policy on class attendance:

Any student who misses more than 15% of class sessions of any course during a semester should expect to fail, unless s/he submits documented evidence to the course instructor of inpatient medical care, death of an immediate family member, academic instructional activities, or national athletic activities. If excused, students are required to satisfy all coursework due or assigned during their absence as determined by the course instructor. If a student does not submit documented evidence for her/his absence exceeding the limit, it is the student's responsibility to withdraw from the course by the specified deadline, as indicated on the academic calendar. Students who withdraw from a course receive a grade of "W". Students who do not withdraw

from a course nor submit supporting documents for excessive absences will receive a grade of “FN” (failure for non-attendance).

4- Code of Academic Honesty and Integrity:

Upon admission to the American University of Kuwait, students agree to act responsibly in all areas of academic, personal, and social conduct and to take full responsibility for their individual and collective action. Such regulations are found in the American University of Kuwait Catalogue, Student Handbook, and the AUK website at www.auk.edu.kw. Any question of interpretation regarding the code of academic honesty and Integrity shall be reported to the appropriate academic dean. The Code shall be reviewed annually at the discretion of the academic deans. Any student or student organization found to have committed the cited violations or misconduct, either on or off campus, is subject to the disciplinary sanctions outlined in adjudication procedures.

Plagiarism:

The term “plagiarism” includes, but is not limited to, an attempt of an individual to claim the work of another as the product of his or her own thoughts, regardless of whether that work has been published. Plagiarism includes, but is not limited to, quoting improperly or paraphrasing text or other written materials without proper citation on an exam, term paper, homework, or other written material submitted to an instructor as one’s own work. Plagiarism also includes handing in a paper to an instructor that was purchased from a term paper service or downloaded from the Internet and presenting another person’s academic work as one’s own.

Cheating:

The term “cheating” includes but is not limited to, copying homework assignments from another student; working together with another individual on a take-home test or homework when not approved by the instructor, looking at and/or copying text, notes or another person’s paper during an examination when not permitted to do so. Cheating also includes the giving of work information to another student to be copied and/or used as his or her own. This includes but is not limited to giving someone answers to exam questions either when the exam is being given or after having taken an exam; informing another student of specific questions that appear or have appeared on an exam in the same academic semester; giving or selling a term paper, report, project or other restricted written materials to another student.

In case of violating the Code of Academic Honesty and Integrity, all legal actions will be applied.

5- Academic Support:

The Writing and Tutoring Center (WTC) focuses on empowering students to become independent and successful learners by developing their literacy skills, enhancing their understanding, and helping them improve their academic and study skills. WTC offers tutoring and writing consultations to all AUK students and collaborates with academic departments to continuously develop more effective learning support and classroom workshops. WTC also works with faculty and other support units on campus to recognize and respect the rights and equality of all who seek assistance. Students can schedule appointments through the TutorTrac online appointment system, or they can drop in for assistance. The center also uses various digital platforms to conduct online operations.

The AUK Library provides you with the necessary support to conduct research and find additional readings for your class work. Need to research but don't know where to start? Not sure how to find and use online resources (books, data, articles...etc.)? Not sure how to cite a source or develop a reference list? Ask a librarian! Research help is available through email, MS Teams, Zoom. For any additional help, do not hesitate to contact the library at: library@auk.edu.kw or go to <https://www.auk.edu.kw/academics/Library> to begin your search!

Disability Accommodations:

AUK provides equal and inclusive educational environment in order to enable all students to meet and perform requisite academic standards and to participate in the opportunities and activities of its community. If you believe you can benefit from accommodations for a learning, physical, or mental health disability, [click here to book a session through the Counseling Center/Disability Services Booking Page](#), to ask about disability services at AUK, initiate an accommodation plan, or receive disability services. You can also email counseling@auk.edu.kw if you need assistance in booking a session.

6- Course Policies/Student Responsibilities:

- We treat each other with respect. We will address others in the manner they prefer to be addressed.
- Adherence to the university's dress code guidelines. We will sit up straight, and shoes are to always remain on.
- Class will begin promptly at the start of the period and will end when the instructor dismisses the class. Make every effort to ensure that you are there on time.
- The ONLY Beverage and Snack permitted in class is WATER in a see-through container.
- Raise your hand if there is something you do not understand. Questions are an invaluable learning tool, therefore; strive to ask when you encounter a challenging concept. Restricting your questions to the material at hand is expected and appreciated.
- All electronic devices will be on silent or turned off completely and stowed away. Any non-sanctioned use of an electronic device in class may result in the student being marked absent for the day.
- Please make sure to allow 48 hours to receive a response for your email. The instructor usually checks emails during office hours. The instructor reserves the right not to respond to emails whose answer can be found in the syllabus or in a previous communication.
- Be sure to email your instructor if you experience any doubt in understanding a concept. Mathematics is layered like a cake. Let's make sure you understand the bottom layers in order to feel comfortable with the top ones later on.
- The students are expected to join the class, at least, 5 minutes before class time.
- Be sure to participate even if you are uncertain of your answer. Enjoy the class, while allowing others to enjoy it too. Refrain from ridiculing answers or engaging in any distributive behavior. Learning is a journey of beautiful adventure and exploration.
- Students behaving in a manner that threatens the environment mentioned above will receive a warning, asked to change their place, or in extreme cases; be removed from class, marked as absent and the Student Code of Conduct policy enforced.

Communication Policy:

Please be sure to use your official AUK email account, write your full name, and indicate which class and section you are taking (Section DAY/TIME) when you send me an email. If you have a question, please check the syllabus first and if your question is not answered there, then please feel free to send an email and I will be happy to clarify. I respond to questions via email within 48 hours of receiving them; if I do not respond within 48 hours, please re-send the email. Please note I normally respond during these office hours. Emails sent on weekends will be responded to on Sunday.

7- Course Schedule:

| Week | Topic | Assignments |
|-----------------------------|--|-----------------|
| 1 | Ch1: Units, Physical Quantities | |
| 2 | Ch1: Vectors | Quiz-1: Ch1 |
| 3 | Ch2: Motion in 1D | |
| 4 | Ch2: Motion in 1D | |
| 5 | Ch3: Motion in 2D | Quiz-2: Ch2+Ch3 |
| 6 | Ch4: Newton's Laws of Motion | |
| 7 | Ch5: Applying Newton's Laws | |
| 8 | Midterm: Ch2+Ch3+Ch4+Ch5 | |
| 9 | Ch6: Work and Kinetic Energy | |
| 10 | Ch7: Potential Energy | Quiz-3: Ch6+Ch7 |
| 11 | Ch7: Energy Conservation | |
| 12 | Ch8: Momentum, Impulse, and Collisions | |
| 15 | Ch9: Rotation of Rigid Bodies | Quiz-4: Ch8+Ch9 |
| 16 | Ch10: 10.1 + Review | |
| Final Exam: Ch6+Ch7+Ch8+Ch9 | | |

Syllabus Changes: There may be changes to the schedule and syllabus during the semester. When this happens, I will inform you in class and over email.