PHY 122 University Physics (I) Lab Fall 2023

Days/Times and Location:

MONDAY (82284 and 78466): 10:10 am - 12:00 pm and 12:20 pm - 2:10 pm; SANTAN 114

WEDNESDAY (78467): 10:10 am - 12:10 pm; SANTAN 114

Course and Faculty Information:

Course Description: Lab accompanying PHY 121. Both PHY 121 and PHY 122 must be taken to secure SQ General Studies credit.

Credits: 1.0

(**Note: Honors students will receive honors credit for this course. Honors students will be provided with additional class assignments that will be based on experiment related research based topics.)**

Prerequisites: Pre- or corequisite(s): PHY 121 with C or better if completed OR Visiting University Student.

Instructor:

Abhijit Khare (Pronouns: he/him/his)

Contact Info:

Office: Wanner Hall Room: 140 P

Email: arkhare@asu.edu

Office Hours:

In person: THURSDAY: 2:00 PM – 3:00 PM

Zoom (appointment set only by request sent by **email**.)

You can also reach me via Zoom at **https://asu.zoom.us/j/4656076528** upon request by email.

Note: Please construct all emails with your full name, the course in which you are enrolled, and a proper greeting and closing. I do check emails quite frequently during the day and once during the night.

About myself:

I have wanted to get into physics since my childhood. I did my schooling, and college education in India, and earned my BS (Honors) and MS degrees in physics from School of Science, University of Indore, India, before moving to the United States in 1995. My favorite television series in India was "Turning Point" whose aim was to "inculcate the scientific temper", thus presenting the wonders of science in the simplest language to engage both, the young and old. After moving to the United States, I started teaching at Maricopa Community Colleges as an adjunct faculty in physics and math since Fall 1999 and have also taught at BASIS Ahwatukee as an AP Physics teacher for four years before joining ASU Polytechnic in Fall 2017. At ASU Polytechnic, I have taught physics lab courses ranging from PHY 101 to PHY 132 and, also recitation classes in general physics and university physics.

College Contact: This course is offered by the College of Integrative Sciences and Arts (CISA). For more information about the college, visit our website: https://cisa.asu.edu. If you have questions about this course, please speak with your instructor. If your instructor is unable to address your questions, please send your inquiry to cisa@asu.edu.

Physics Learning and Belonging:

Equity, diversity, accessibility, engagement, uniqueness, inclusion, and belonging are valued in this classroom. Your success in this class is very important to me and you should feel a sense of belonging to this class. The lab course is a hands-on activity and experimentation and would give you a great opportunity to "Do and Learn" physics and interact with your fellow students. You are very welcome as you are in this class by me and the physics community.

We all need accommodation because we all learn differently. If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we will develop strategies to meet both your needs and the requirements of the course.

I encourage you to visit the Office of Disability Services to determine how you could improve your learning as well. If you need official accommodation, you have a right to have these met. There are also a range of resources on campus, including the Writing Center, Tutoring Center, and Academic Advising Center.

Course Learning Outcomes:

At the completion of this course, students will be able to:

1. Compare the accuracy of measurements.
2. Describe the variables in one-dimensional motion and calculate position, velocity, and acceleration.

3. Sketch and plot the graphs of position-time, velocity-time, and acceleration-time for a given situation. Apply calculus to find the distance traveled from velocity-time graph by finding the area under the graph.
4. Give physical examples of vectors and add vectors.
5. Draw free-body diagrams.
6. Calculate potential and kinetic energies.
7. Calculate impulse, momentum and solve problems with the principle of conservation of linear momentum.
8. Analyze uniform circular motion.
9. Calculate the conditions for mechanical equilibrium.
10. Calculate moments of inertia.
11. Apply the conservation of momentum and energy to the ballistic pendulum case.
12. Apply the conservation of angular momentum to rigid body rotating objects.
13. To determine the free-fall acceleration due to gravity for objects undergoing motion in various cases.
14. To verify the properties of under-damped, damped, and driven harmonic oscillators.

Course Learning Objectives:

Experimentation and testing are the cardinal principles in research. The laboratory gives the student the opportunity to test the theories learned in lecture.

1. Students will understand the diversity of scientists, their history and challenges and get encouragement from their stories.
2. Students will be able to use the data acquisition tool (Pasco Capstone software) for collecting any data related to kinematics, forces, energies, and rotational motion of objects.
3. Students will be able to apply Newton's laws to the force of gravity, the friction force and uniform circular motion.
4. Students will be able to draw free-body diagrams for various situations.
5. Students will be able to use the CALCULATOR feature in Capstone to enter and analyze equations of kinetic and potential energies.
6. Students will be able to use LoggerPro for doing the curve plots, find the best linear fit and find area under velocity-time and force-distance graphs.

Zoom Recordings and Course Content Copyright:

Please note that this course is now offered in person, so lab sessions will not be recorded as it used to be in the past. If students were to miss a lab session due to being absent, please reach out to me as soon as possible so that we can discuss alternate options to make-up the session or an assignment. I do have recorded labs from the past semester, which I can forward to students for reference in case there is a need to catch up with the concepts.

The contents of this course, including lectures and other instructional materials, are copyrighted materials. Students may not share outside the class, including uploading, selling, or distributing course content or notes taken during the conduct of the course. Any recordings of class sessions

by students are prohibited, except as part of an accommodation approved by the Disability Resource Center.

Textbooks, Required Readings and Materials:

Required: **PHY 122 (University Physics I) Lab Manual 4th edition**

Format: Hard copy

Author(s): DeGraffenreid, Elaqad, and Sebastian

Publisher: Kendall Hunt Pub. Company

ISBN: 9781792476280

Reference (recommended): University Physics (with Modern Physics), 14th ed. by *Young* and *Freedman*

Scientific Calculator, Safety Glasses (will be provided when required), and closed toed shoes.

Course access:

Your ASU courses can be accessed by both my.asu.edu and asu.instructure.com; bookmark both in the event if one site is down.

Additional Requirements:

This course requires the following technologies:

- Web browsers (Chrome, Mozilla Firefox, or Safari)
- Adobe Acrobat Reader (free)
- Microsoft Office (Microsoft 365 is free for all currently enrolled ASU students)
- Reliable broadband internet connection (DSL or cable) to stream videos.

Note: A smartphone, iPad, Chromebook, etc. will not be sufficient for completing your work in an online environment. Although you will be able to access course content with mobile devices, you must use a computer for all assignments, quizzes, and virtual labs (if needed) completed in Canvas.

Student Success:

To be successful:

- Check the course daily.

- Read announcements.
- Read and respond to course email messages as needed.
- Complete assignments by the due dates as specified.
- Communicate regularly with your instructor and peers.
- Create a study and/or assignment schedule to stay on track.
- Access ASU Online Student Resources or CISA Academic Resources.

Grading:

Your grade will be determined based on the following grading schema:

Grade	**Percentage**	
A	89.5 – 100%	
B	79.5 – 89.4%	
C	69.5 – 79.4%	
D	59.5 – 69.4%	
E	< 59.5%	
EU	< 50.5%	Failing Did Not Complete
EN	0%	Failing Never Participated

Extra Credit: There will be **no** extra credit for this course.

Grading Procedure:

Grades reflect your performance on assignments and adherence to deadlines. Grades on assignments will be available within 1 week of the due date in the Gradebook. Lab assignments (experiment pages from the lab manual) and quizzes are graded on completion AND correctness.

Please note that lab course is basically a group activity, so it is essential that ALL students participate equally in doing the lab experiment. There will be lab groups (maximum of 3 students per lab group) made on the first day of our class, and students in each group would take turns in running the experimental portion and collecting and recording the data obtained. I will be moving around the lab workstation tables frequently to check on the status of the lab experiment in each group.

After the students collect the data, they will need to check with me to "sign-off" from the computer.

Lab report (hard copy) is due 1 week from the date of the lab experiment completed during the first 5 – 7 minutes of the following week's lab session. Prelab is to be done before coming to the lab session. Please make sure you have purchased a hard copy of the lab manual by the first lab session day. Students will need to remove the completed lab pages along the perforated line as provided in their lab manual, and then staple them together to have it submitted to the instructor. All graph(s) obtained from the Capstone use during the lab MUST be saved electronically by each student and MUST be submitted directly on canvas by each student. Please note that lab reports are to be submitted individually.

Lab quiz will be taken on canvas on the same day as the lab date and will be due by 11:59 pm. Lab quiz will have a time duration of 20 minutes. I use a Respondus LockDown Browser + webcam for all quizzes. The quiz window will be open from 8:00 am until 11:59 pm on canvas. Quizzes not completed during this timing window will be replaced with a "0". No exceptions!!

(Lab quiz will consist of multiple-choice questions.)

Late lab submission: Any lab that is turned in after the 7 minutes of class begin time be counted as late and late penalty of 20 points will be applied as long as the lab is turned in the same day before the session ends. Once the day is passed, late turns-ins are typically not accepted and a score of "0" is given.

Internet connectivity problems or lack of internet connection in your residence are not an excuse for not taking quiz. ASU has computers on each campus for student use. Locations and hours are listed at https://uto.asu.edu/services/campus-it-sites/tempeLinks *to an external site. Assignments will not be excused for lack of internet connections.*

Assignment Weights:

Total number of lab experiments required to be completed: **10** (I will drop one low lab score, which also includes any single missed lab without any make-up made.)

(Each lab is graded at 100 points total = 50% Lab attendance and Data collection + 50% Lab script). **A lab script not turned in will not be given any credit, even if a student was present for the lab.**

Note: If your lab script is found to have contained with incorrect data and answers written with incorrect graph(s) (if any required), then you will only get a maximum of 50 points (counted from your attendance) out of total 100 points on that lab.

Total number of quizzes required to be completed: **10** (I will drop one low quiz score.)

(Each quiz is graded at 10 points total.)

Assignment	**Total Points**
Lab Experiment (Lab attendance & Data collection + Lab Report):	**1000** (10 x 100)
Quizzes:	**100** (10 x 10)
Diversity Presentation:	**10**
TOTAL:	**1110** Points

Submitting Assignments:

All lab reports (required lab manual pages) will be submitted as a hard copy. Diversity presentations (PowerPoint slides of one-page summary) will be emailed to the instructor towards the end of the semester. I will talk about this in class at some point during the semester. For your own protection, you should keep a copy of your graded labs, and you should keep and store your graded assignments at least until grades are finalized at the end of the semester in the event you wish to contest any grades.

Assignment due dates follow Arizona Standard time. Please make sure of the correct time you are submitting the assignment. Note: Arizona does not observe daylight savings time.

Notify the instructor **before** a lab assignment is due if an urgent situation arises and you are unable to submit the assignment on time.

Follow the appropriate University policies to request accommodation for religious practices, or to request accommodation for missed assignments due to university-sanctioned activities or active military service.

Assignments may be excused in cases of extreme hardship such as a medical emergency. A doctor's note must be provided that has the name of the provider, the signature of the provider, the name of the clinic and the dates for which the student is excused. Doctor's notes from out of state are not accepted.

If a student is absent for 3 or more lab sessions in a semester, it is automatically a failure grade. (For specific circumstances, please speak with the instructor.)

Attendance Policy:

In-person attendance is required for all lab sessions. If you were to miss a lab, then it will be dropped considering it as the lowest lab.

Please do not submit the lab report if you did not attend the class.

Follow the appropriate University policies to request accommodation for religious practices, or to request accommodation for missed assignments due to university-sanctioned activities or active military service.

Attendance may be excused in cases of extreme hardship such as a medical emergency, or any unforeseen circumstances such as a car accident or a road-side emergency. In case of medical emergency, a doctor's note must be provided that has the name of the provider, the signature of the provider, the name of the clinic and the dates for which the student is excused. Doctor's notes from out of state are not accepted.

PLEASE NOTE THAT STUDENT(S) MUST NOT SET-UP ANY PHYSICIAN OR DENTIST APPOINTMENT DURING THE LAB CLASS TIMINGS.

Similarly, STUDENT(S) MUST NOT SET-UP ANY ACADEMIC ADVISOR OR ACADEMIC SUPPORT RELATED APPOINTMENTS AT ANY CAMPUS DURING THE LAB CLASS TIMINGS.

Any other absences that are directly related to ASU should be discussed with the instructor prior to the class absence(s). Any absence due to non-ASU related work would be considered as an unexcused absence.

Lab Room Policy:

- IPHONES, CELL PHONES, etc. NEED TO BE TURNED **OFF** DURING CLASS.

- Students bringing their laptops, iPads, or notebook PC inside the lab must properly sanitize their equipment before and after use and wipe off their student workstation with Lysol wipes after lab before they leave the lab room. MUST be wearing face masks, shoes while inside the lab room.
- SHOES (CLOSED TOED) ARE REQUIRED TO BE INSIDE THE LAB.
- FOOD AND DRINK ARE NOT ALLOWED INSIDE THE LAB. Water bottles are allowed and must be kept away from the lab workstation table.
- Any skateboards, if brought inside, MUST be kept under the side wall tables.
- Any student backpacks brought inside MUST be placed on the side rack or under the lab workstation tables.
- The fire evacuation route door MUST NOT be used for entering and leaving the lab room.
- **All students need to clean up their lab station tables and push the chairs back under the table(s) BEFORE they leave the lab room.**

Communicating with your Instructor and Classmates:

Classroom Community:

To build a course climate that is comfortable for all, it is important that students (1) display respect for all members of the class – including the instructor and students; (2) pay attention to and participate in all interactive student partner/instructor sessions and activities; and (3) observe the rules of appropriate online behavior (also known as *netiquette*). This term is defined by the instructor and includes keeping course discussion posts and oral communication with other students (or the instructor) focused on the assigned topics. Students must maintain a cordial atmosphere and use tact in expressing differences of opinion. In addition, they must avoid racist, sexist, homophobic, or other negative language that may unnecessarily exclude course members. This is not an exhaustive list of behaviors; rather, it represents examples of the types of things that can have a dramatic impact on the course environment. Your final grade may be reduced each time you engage in the types of negative behavior indicated above.

Community Forum:

This course uses a Canvas discussion topic called "Community Forum" for general questions and comments about the course. Check the syllabus, announcements, and existing posts to ensure it's not redundant prior to posting a question or comment. You are encouraged to respond to the questions of your classmates.

Email questions of a personal nature to your instructor. You can expect a response with**in 24 hours during the week and 72 hours on weekends.**

Chat:

The Chat tool in Canvas allows students and teachers to interact in real time. Use Chat only for informal course-related conversations unless your instructor informs you otherwise. Chat is not

ideal for questions about assignments; instructors are not required to monitor it and conversations may be buried or lost.

Email:

ASU email is an official means of communication among students, faculty, and staff. Students are expected to read and act upon email in a timely fashion. Students bear the responsibility of missed messages and should check their ASU-assigned email regularly.

All instructor correspondence will be sent to your ASU email account.

COURSE Time Commitment:

Coursework includes all learning activities including reading, watching videos, studying, and completing assignments. Arizona Board of Regents (ABOR) require 45 hours of coursework per credit for college-level courses, which translates to:

1 credit hour = 45 total hours

2 credit hours = 90 total hours

3 credit hours = 135 total hours

4 credit hours = 180 total hours

5 credit hours = 225 total hours

ASU courses range in length from 6 weeks to 15 weeks. Below is a breakdown of the 135-hour required time commitment for a three-credit course divided among weeks for courses of various lengths.

Course Length	**Time on Coursework per Week for a 3-credit course**	**Total Time Requirement for a 3-credit course**
6 weeks	22.5 hours	135 hours
7.5 weeks	18 hours	135 hours
8 weeks	17 hours	135 hours
15 weeks	9 hours	135 hours

Drop and Add Dates/Withdrawals:

Please refer to the academic calendar on the deadlines to drop/withdraw from this course.

Consult with your advisor and notify your instructor if you are going to drop/withdraw this course. If you are considering a withdrawal, review the following ASU policies: Withdrawal from Classes, Withdrawing as a Financial Aid Recipient, Medical/Compassionate Withdrawal, and a Grade of Incomplete.

Please note that the ASU Academic Calendar only refers to withdrawal for the academic portion of your study abroad program. Please refer to the Study Abroad Withdrawal Policies for important dates regarding withdrawing from your Faculty Directed program.

Grade Appeals:

Students must first speak with the instructor of the class to discuss any disputed grades. If, after review, a resolution is not achieved, students may proceed with the appeal process. Student grade appeals must be processed in the regular semester immediately following the issuance of the grade in dispute (by commencement for fall or spring), regardless of whether the student is enrolled at the university. Complete details are available in the CISA Grade Appeals Policy.

Academic Integrity:

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure (indicated on the transcript as a grade of E), course failure due to academic dishonesty (indicated on the transcript as a grade of XE), loss of registration privileges, disqualification and dismissal. For more information, see provost.asu.edu/academicintegrity.

If you fail to meet the standards of academic integrity in any of the criteria listed on the university policy website, sanctions will be imposed by the instructor, college, and/or dean. Academic dishonesty includes, but is not limited to, cheating on an academic evaluation or assignment, plagiarizing, academic deceit (such as fabricating data or information), or falsifying academic records. Turning in an assignment (all or in part) that you completed for a previous class is considered self-plagiarism and falls under these guidelines. Any infractions of self-plagiarism are subject to the same penalties as copying someone else's work without proper citations. Students who have taken this class previously and would like to use the work from previous assignments should contact the instructor for permission to do so.

If you have any questions about your work and the academic integrity policy, please discuss your assignment or concerns with your instructor, teaching assistant, or your college Academic Integrity Officer in advance of submitting an assignment. Student resources on Sun Devil Integrity and strategies for completing your work with integrity and avoiding plagiarism are

available here: ASU Student Resources for Academic Integrity or provost.asu.edu/academicintegrity for more information.

Harassment Prohibited:

ASU policy prohibits harassment on the basis of race, sex, gender identity, age, religion, national origin, disability, sexual orientation, Vietnam era veteran status, and other protected veteran status. Violations of this policy may result in disciplinary action, including termination of employees or expulsion of students. Students are encouraged to report harassment to instructors and the Dean of Students Office.

Student Conduct:

ASU and the College of Integrative Sciences and Arts expects and requires its students to act with honesty, integrity, and respect. Required behavior standards are listed in the Student Code of Conduct and Student Disciplinary Procedures, Computer, Internet, and Electronic Communications policy, ASU Student Academic Integrity Policy, and outlined by the Office of Student Rights & Responsibilities. Anyone in violation of these policies is subject to sanctions. Students are entitled to receive instruction free from interference by other members of the class. An instructor may withdraw a student from the course when the student's behavior disrupts the educational process per Instructor Withdrawal of a Student for Disruptive Classroom Behavior. The Office of Student Rights and Responsibilities accepts incident reports from students, faculty, staff, or other persons who believe that a student or a student organization may have violated the Student Code of Conduct.

Students must refrain from uploading to any course shell, discussion board, or website used by the course instructor or other course forum, material that is not the student's original work, unless the students first comply with all applicable copyright laws; faculty members reserve the right to delete materials on the grounds of suspected copyright infringement.

Title IX:

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at https://sexualviolenceprevention.asu.edu/faqs.

As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, https://eoss.asu.edu/counseling, is available if you wish to discuss any concerns confidentially and privately. ASU online students may access 360 Life Services, at https://goto.asuonline.asu.edu/success/online-resources.html.

Student Accessibility and Inclusive Learning Services (SAILS):

Qualified students with disabilities who will require disability accommodation in this class are encouraged to make their requests to the instructor at the beginning of the semester either during office hours or by appointment. Note: Prior to receiving disability accommodations, verification of eligibility from the Student Accessibility and Inclusive Learning Services is required. Disability information is confidential.

Student Accessibility and Inclusive Learning Services (eoss.asu.edu/drc)

Email: DRC@asu.edu

SAILS Phone: 480-965-1234 **SAILS FAX:** 480-965-0441

Tutoring:

Free tutoring support is available in person and online for most courses. Services are offered through ASU's University Academic Success Programs for currently enrolled students.

- Tutoring is available in math, business, science, statistics, and engineering courses.
- Writing tutoring is available for any writing project at any stage of the writing process.
- Supplemental Instruction (SI) facilitates collaborative study groups for selected courses.
- Graduate academic tutoring is available for writing and statistics.
- Academic skills tutoring can help with critical thinking, study skills, note taking, and more.
- Resources are available through our YouTube channel, Zoom recordings, and handouts.

Visit https://tutoring.asu.edu or call (480) 965-9072 for more information about these services, to view our schedules, or to book an appointment.

Statement on Inclusion:

Arizona State University is deeply committed to positioning itself as one of the great new universities by seeking to build excellence, enhance access, and have an impact on our community, state, nation, and the world. To do that requires our faculty and staff to reflect the intellectual, ethnic, and cultural diversity of our nation and world so that our students learn from the broadest perspectives, and we engage in the advancement of knowledge with the most inclusive understanding possible of the issues we are addressing through our scholarly activities. We recognize that race and gender historically have been markers of diversity in institutions of higher education. However, at ASU, we believe that diversity includes additional categories such as socioeconomic background, religion, sexual orientation, gender identity, age, disability, veteran status, nationality, and intellectual perspective.

Mental Health:

As a student, like anyone else, you may experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating, and/or lack of motivation. These emotional health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. ASU Counseling Services provides counseling and crisis services for students who are experiencing mental health concern. Any student may call or walk-in to any ASU counseling center for a same-day or future appointment to discuss any personal concern. Here is the website: eoss.asu.edu/counseling. After office hours and 24/7 ASU's dedicated crisis line is available for crisis consultation by calling 480-921-1006.

Establishing a Safe Environment:

Learning takes place best when a safe environment is established in the classroom. In accordance with SSM 104-02 of the Student Services Manual, students enrolled in this course have a responsibility to support an environment that nurtures individual and group differences and encourages engaged, honest discussions. The success of the course rests on your ability to create a safe environment where everyone feels comfortable to sharing and explore ideas. We must also be willing to take risks and ask critical questions. Doing so will effectively contribute to our own and others' intellectual and personal growth and development. We welcome disagreements in the spirit of critical academic exchange, but please remember to be respectful of others' viewpoints, whether you agree with them or not.

All incidents and allegations of violent or threatening conduct by an ASU student (whether on- or off-campus) must be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. If either office determines that the behavior poses or has posed a serious threat to personal safety or to the welfare of the campus, the student will not be permitted to return to campus or reside in any ASU residence hall until an appropriate threat assessment has been completed and, if necessary, conditions for return are imposed. ASU PD, the Office of the Dean of Students, and other appropriate offices will coordinate the assessment in light of the relevant circumstances.

Prohibition of Commercial Notetaking Services:

In accordance with ACD 304-06 Commercial Note Taking Services, written permission must be secured from the official instructor of the class in order to sell the instructor's oral communication in the form of notes. Notes must have the note taker's name as well as the instructor's name, the course number, and the date.

Course Evaluation:

Students are expected to complete the course evaluation. The feedback provides valuable information to the instructor and the college and is used to improve student learning. Students are

notified when the online evaluation form is available. The results are always anonymous and cannot be reviewed by the instructor/department until after final grades have been posted.

Trigger Warning:

Please note that some course content may be deemed offensive by some students, although it is not my intention to offend anyone. In addition, some materials that we link with online might also be considered offensive, troubling, or difficult to review in terms of language or graphics. I attempt to provide warnings when introducing this kind of material; yet, if I forget to do so, or if something else (in my materials or posts from fellow students) seems offensive, please contact me at **arkhare@asu.edu**, or the faculty head, Prof. Igor Shovkovy.

Academic Affairs Manual:

For a complete guide to Arizona State University course policies, please refer to the Academic Affairs Manual (ACD).

Syllabus Disclaimer:

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule, but the possibility exists that unforeseen events will make syllabus changes necessary. Remember to check your ASU email and the course site often.

PHY 122 Lab Schedule (Tentative) Fall 2023

Week of	**Lab**
08/21 – 08/25	Student Lab Safety; Capstone Tutorial and Introduction to Error Analysis (Lab 1)
08/28 – 09/01	Vectors (Lab 2)
09/04 – 09/08	**Labor Day, 09/04 (No lab this week)**
09/11 – 09/15	Motion in 1D (Lab 3)

09/18 – 09/22	Projectile Motion (Lab 4)
09/25 – 09/29	Diversity Assignment
10/02 – 10/06	Newton's Laws (Lab 5)
10/09 – 10/13	**FALL BREAK (No lab this week)**
10/16 – 10/20	Friction (Lab 6)
10/23 – 10/27	Uniform Circular Motion (Lab 7)
10/30 – 11/03	Energy (Lab 8)
11/06 – 11/10	**Veterans Day, 11/10 (No lab this week)**
11/13 – 11/17	Impulse Momentum (Lab 9)
11/20 – 11/24	**Thanksgiving Holiday (11/23 – 11/24), No lab this week**
11/27 – 12/01	Torque and Equilibrium (Lab 10)