

## PHY 122 University Physics Lab 1

Section 81951 |Poly| F | 12:20pm – 2:10pm | Santan 114

Section 78468|Poly| F | 2:30pm – 4:20pm | Santan 114

Section 75362 |Poly| W | 3:00pm – 4:50pm| Santan 114

Section 75361 |Poly| F | Th| 3:00pm – 4:50pm | 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

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

### Faculty Information

**Instructor:** Dr. Jim DeGraffenreid

**Contact Info:** Email: [jcdegra@asu.edu](mailto:jcdegra@asu.edu)  
Phone: (602)410-6676 (text only)  
Office: Wanner Hall room 340A

**Office Hours:** Tuesday 1:30pm – 2:30pm in person or by Zoom  
Wednesday 1:30pm – 2:30pm in person or by Zoom  
<https://asu.zoom.us/j/7232663685>

**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](mailto:cisa@asu.edu).

## Student Learning Outcomes

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

1. To describe and compare 1D motion with no acceleration and constant acceleration
2. To calculate the resultant of two or more vectors

3. To describe 3D vectors
4. To apply the equations for projectile motion and verify them by experiment
5. To apply Newton's laws to situations with and without friction
6. To describe uniform circular motion and how it varies with changes in the radius of the path and the mass of the object with other parameters varied.
7. To describe experiments that verify the acceleration of gravity.
8. To describe the relationship between impulse and momentum
9. To perform experiments comparing elastic and inelastic collision and describe the differences.
10. To describe the conservation of linear momentum
11. To calculate torque, moments of inertia, angular momentum and describe conservation of angular momentum
12. To calculate and verify the conditions for mechanical equilibrium

## Course Objectives

Please address the course objectives you, as the instructor, have for this course.

1. Students will gain an understanding of 1 and 2D motion.
2. Students will gain an understanding of the properties of vectors in 2 and 3 Dimensions and how vectors add.
3. Students will understand how objects move in situations with and without friction.
4. Students will be able to describe the relationship between impulse and momentum
5. Students will be able to explain the motion of projectiles and the limits of the equations used to calculate how projectiles move.
6. Students will gain an understanding of uniform circular motion
7. Students will be able to describe how impulse changes in different collision conditions.
8. Students will gain an understanding of elastic and inelastic collisions
9. Students will gain an understanding of torque, momentum of inertia, angular momentum and conservation of angular momentum
10. Students will study the conditions for total mechanical equilibrium
11. Students will study experiments used to calculate the acceleration of gravity

## Copyright

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 recording of class sessions is authorized only for the use of students enrolled in this course during their enrollment in this course. Recordings and excerpts of recordings may not be distributed to others.

## Textbooks, Required Readings and Materials

Closed toe shoes – no sandals, flip-flops or Crocs

Safety Glasses

Scientific Calculator

## Course Access

Your ASU courses can be accessed by both [my.asu.edu](http://my.asu.edu) and [asu.instructure.com](http://asu.instructure.com); bookmark both in the event that one site is down.

## Attendance Policy

In person class attendance is required in the course, and attendance is taken every class session. If you are unable to attend class for any reason, please contact me as soon as possible. This course will not be available through Zoom either in real time or recorded.

You must sign the attendance sheet at the beginning of the class. Not doing so may result in a zero for the quiz or the lab report.

Attendance and participation in class activities is an essential part of the learning process, and students are expected to attend class regularly. Some absences are, however, unavoidable. Excused absences for classes will be given without penalty to the grade in the case of (1) a university-sanctioned event [ACD 304-02]; (2) religious holidays [ACD 304-04; a list can be found here <https://eoss.asu.edu/cora/holidays>]; (3) work performed in the line-of-duty according [SSM 201-18]; and (4) illness as documented by a health professional.

Anticipated absences for university-sanctioned events, religious holidays, or line-of-duty activity should be communicated to the instructor by **email** at least **7 days** before the expected absence.

Absences related to illness should be documented by a health professional and communicated to the instructor as soon as possible by **email**.

Excused absences do not relieve students from responsibility for any part of the course work required during the period of absence. Faculty will provide accommodations that may include participation in classes remotely, access to recordings of class activities, and make-up work.

If there is a disagreement as to whether an absence should be accommodated, the instructor and student should contact the academic unit chair immediately for resolution.

## Course Outline

Week	Topic	Assignments
Aug 21:	Introduction	Lab 1: Capstone Tutorial Diversity Assignment
Aug 28:	Vectors	Lab 2: Vectors

Sept 4:	<b>No Class – Labor Day Week</b>	
Sept 11:	Motion in 1 Dimension	Lab 3: Motion in 1 Dimension
Sept 18:	Projectile Motion	Lab 4: Projectile Motion
Sept 25:	Diversity Presentations	
Oct 2:	Newton's Laws	Lab 5: Newton's Laws
Oct 9:	<b>No Class – Fall Break</b>	
Oct 16:	Friction	Lab 6: Friction
Oct 23:	Energy	
Oct 30:	Uniform Circular Motion	Lab 7: Uniform Circular Motion
<b>Nov 6:</b>	<b>No Class – Veterans Day</b>	
Nov 13:	Impulse Momentum	Lab 9: Impulse Momentum
<b>Nov 20:</b>	<b>No Class - Thanksgiving</b>	
Nov 27:	Torque and Equilibrium	Lab 11: Torque and Equilibrium

## Assignment Details/Academic Integrity for Lab

Assignment details are given in Canvas

In addition to the University Academic Integrity Policies found later in this syllabus, the following policies also apply:

- 1) If you do not attend class, you MAY NOT submit a lab report
- 2) If you miss class, you cannot get data from a group member, a friend, a family member, a prior student or anyone else who may have the data and use that to submit a lab report.
- 3) Lab reports violating University Policies or the policies above will receive a zero (0) and may be reported to the College Academic Integrity Officer.

## Submitting Assignments

For your own protection, you should keep a copy of everything you hand in, and you should keep your graded assignments at least until grades are finalized at the end of the semester in the event you wish to contest any grades.

All assignments, unless otherwise announced by the instructor, **MUST** be submitted to the designated area of Canvas. Do not submit an assignment via email.

- 1) Lab reports are submitted to Canvas
- 2) Quizzes will be done on paper
- 3) Diversity presentation will be submitted in Canvas and presented in class.

Assignment due dates follow Arizona Standard time. Click the following link to access the [Time Converter](#) to ensure you account for the difference in time zones. Note: Arizona does not observe daylight savings time.

## Additional Requirements

This course requires the following technologies:

- Web browsers ([Chrome](#), [Mozilla Firefox](#), or [Safari](#))
- [Adobe Acrobat Reader](#) (free)
- Webcam, microphone, headset/earbuds, and speaker
- 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 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 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

Assignment Weights:

Lab Reports: 85% (Lowest Score Dropped)

Quizzes: 15% (Lowest Score Dropped)

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

Grade	Percentage	Points Range

A+	100-96.5%	### - ###
A	<96.5-89.5%	### - ###
B	<89.5-79.5%	### - ###
C	<79.5-69.5%	### - ###
D	<69.5-59.5%	### - ###
E	<59.5%	###
EU	<59.5%	Failing Did Not Complete
EN	0%	Failing Never Participated

## 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.

## Late or Missed Assignments

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

Your lowest lab report score is dropped so if you miss only one lab report it will not hurt your grade.

Late Lab Reports are Accepted with points deducted as follows:

0-12 hours late no deduction

12-16 hours late: 20 percent deduction

16-24 hours late: 30 percent deduction

Over 24 hours late: 0 for assignment

## 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 behaviors 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 within **24 hours on weekdays 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) requires 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

If you are unable to take this course for any reason, be aware that there is a limited timeline to [drop or add the course](#). Consult with your advisor and notify your instructor to add or drop 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](#).

## 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 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](http://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](http://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, <https://goto.asuonline.asu.edu/success/online-resources.html>.

## Student Accessibility and Inclusive Learning Services (SAILS)

Qualified students with disabilities who will require disability accommodations 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** (<https://eoss.asu.edu/accessibility> )

**Email:** Student.Accessibility@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 reading, 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 a 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](https://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 share 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 [jcdegra@asu.edu](mailto:jcdegra@asu.edu), or the faculty head, [Professor Igor Shokovy](#).

## 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.