

# **PHY 131 University Physics – I Mechanics**

Polytechnic campus | M,W,F | 8:35- 9:25am | PICHO 150

OR

Via ASU Sync (<https://asu.zoom.us/j/9820216314>)

## **Course and Faculty Information**

**Course Description:** PHY131 (University Physics I: Mechanics) is the second course of a multi-course sequence in introductory Calculus-based physics. This course will cover Electricity and Magnetism: Electric charge and current, electric and magnetic fields in vacuum and in materials, and induction. AC circuits, displacement current, and electromagnetic waves. Knowledge about algebra, Calculus (Differentiation and Integration), algebra and trigonometry will be assumed). Most concepts in this course will be heavily built on concepts mastered in PHY121.

**Credits:** 3

**Prerequisites:** Prerequisite(s): MAT 266 or 271 with C or better; PHY 121 with C or better; Pre- or corequisite(s): MAT 267 or 272 with C or better if completed.

**Instructor:** Dr. Pavan Pillalamarri

### **Contact Info:**

Office: Wanner 340P

Phone: (480)727-1135

Email: [pavan.pillalamarri@asu.edu](mailto:pavan.pillalamarri@asu.edu)

**Office Hours:** M, W, F 9:45-10:15 AM. T, Th 12:00-12:30 PM. T, Th 8:30-9:00 PM. (Or email for appointment). All office hours are online and are available via the ASU sync link or <https://asu.zoom.us/j/9820216314>

**College Contact:** This course is offered by the [College of Integrative Sciences and Arts](https://cisa.asu.edu) (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).

## **Course Learning Outcomes**

Through weekly readings, written assignments and the final project, students will be able to:

The overall objective is that the student be able to describe physical phenomena using a variety of models and develop certain analytical skills associated with problem solving. By the end of the course the student should be able to:

- describe and apply the concepts of electric charge, electric field and electric potential
- calculate electric force and the electric fields of discrete charge distributions using Coulomb's law
- employ Gauss's law to determine the electric fields of continuous charge distributions

- utilize the concepts of work and energy to calculate electric potential
- explain the concepts of resistance and capacitance
- use Ohm's law and Kirchhoff's rules to determine resistances, capacitances, voltages and currents in simple circuits
- describe how magnetic fields can be generated
- use the Biot-Savart law and/or Ampere's law to calculate the magnetic fields of various current distributions
- calculate the force that a magnetic field exerts on a moving charge
- use Faraday's law and Lenz's law to calculate induced emfs

## ASU Sync

The class will meet face-2-face on Tuesdays and Thursdays. **If you cannot physically be on campus due to travel restrictions or personal health concerns**, you will be able to attend your classes via ASU Sync during the fall semester. If you will not be on-campus for the fall semester, you are expected to contact your professors to make accommodations.

For the remote option, this course uses Sync. ASU Sync is a technology-enhanced approach designed to meet the dynamic needs of the class. During Sync classes, students learn remotely through live class lectures, discussions, study groups, and/or tutoring. You can find out more information about ASU Sync for students here: <https://provost.asu.edu/sync/students>.

To access live sessions of this class, [log into your ASU Zoom account](#), go to MyASU and click the Attend via Sync button next to this class on your schedule.

## Face Coverings

Everyone is required to wear a face cover while in ASU buildings and community spaces, regardless of distance. Face covers help prevent pre-symptomatic and asymptomatic individuals from inadvertently spreading COVID-19 to others. They are meant to protect others in case you are sick. Students will be required to wear a face cover in the classroom.

*If you require accommodations due to a disability or health-related concern, please contact the Disability Resource Center.*

For more information about face coverings, please visit the [FAQ page](#).

## Textbooks, Required Readings and Materials

**Textbook** - *University Physics with Modern Physics, 15th Edition* (Volume 2, Chapters 21-32) Authors - Hugh D. Young, Roger A. Freedman

**Online Homework System** – MasteringPhysics (Register/Access via canvas)

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.

# Computer Access Requirements

ASU Sync classes can be live streamed anywhere with the proper technology. We encourage you to use a PC or Apple laptop or desktop equipped with a built-in or standalone webcam. You will need an internet connection that can effectively stream live broadcasts. It is recommended that your internet download speed is at least 5.0 mbps. You can use this [tool to test your current connection](#).

We do not recommend the use of iPads or Chromebooks for ASU Sync because these devices do not work for class exams that may be proctored remotely.

If you are not able to personally finance the equipment that you need to attend class via ASU Sync, ASU has a laptop and WiFi hotspot checkout program available through [ASU Library](#).

## Who is eligible?

- Any currently enrolled ASU student is eligible to checkout a laptop or WiFi hotspot. The current availability of laptops can be found [here](#).

## Borrowing and returning laptop rules

- Laptops are lent on a first-come, first-serve basis, and cannot be reserved in advance. They can be returned at any time, but will be due at the conclusion of the fall 2020 semester.
- Rentals are limited to one laptop per student.
- Laptops are available for checkout at the following libraries on all four campuses: ([Please check online for current library hours](#))
  - Downtown Phoenix campus Library
  - Polytechnic campus Library
  - Tempe: Hayden and Noble Libraries
  - West campus: Fletcher Library
- Return laptops to any ASU Library Information Desk (not at the drop box or other location)
- [Refer to ASU Library Computer Use Policy and ASU Computer, Internet, and Electronic Communications Policy](#).
- Borrowers are responsible for loss, damage, and theft of the laptop while in their possession. Borrowers should verify the condition of the laptop at the time of check-out and upon check-in.

## Additional Requirements

This course requires the following technologies:

- Web browsers ([Chrome](#), [Mozilla Firefox](#), or [Safari](#))
- [Adobe Acrobat Reader](#) (free)
- [Adobe Flash Player](#) (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

### Attendance/participation (10% of overall grade)

The PHY 131 course lectures will be held during class time, via zoom, please refer to the top of the page for the class zoom link. Throughout the session, attendance will be taken. Attendance in every session is expected. I do understand that things “happen”, and you may have to miss class. I will excuse two missed class sessions. Please mute your microphones unless you have any questions or concerns, in which case raise your hand (or click the hand icon).

### Recitation (10 % of overall grade)

Recitation will count for 10% of your overall grade. Please consult your recitation instructor for more details.

### Homework (20 % of overall grade)

We will use MasteringPhysics to complete homework in this course. *To receive homework credit, students must gain access to and utilize MasteringPhysics for the completion of all homework assignments. See canvas course shell for registration details.* Homework assignments, and their deadlines, can be found in MasteringPhysics. You will be allowed six attempts per question and each incorrect attempt will result in a 2% penalty (to discourage guess work). Hints may also be available, and you get a 3% extra credit for not opening a hint. *Late homework is penalized at the rate of 5% per day and the total reduction will not be more than 50%.* All homework needs to be completed before December 6<sup>th</sup> 11:59 PM. Due dates are listed on the course schedule and all homework is due at 11:59PM. Homework will be released well in advance of the due date, therefore please start working on them as early as possible. (Technical difficulties just before homework due dates are not grounds for homework extension).

### Block Exams (60% of overall grade)

Four (4) block exams will be given during the session, each focused on the material of the associated block. The dates of these exams are listed in the course schedule and are subject to change by the instructor (in which case an announcement will be made). *No late or makeup exam(s) will be given.*

Exam rules and regulations are as follows: *The exam will be uploaded to canvas at the start of class time.* Download/print the exam and either mark your answers on the printed exam or, on a separate sheet of paper. Scan your responses to a single pdf file (only single pdf files will be accepted) and upload it to canvas (details will be provided in the canvas course shell). Work needs to be shown clearly for full credit. All steps need to be shown clearly. Late submissions will not be accepted. The fourth block exam will be held during finals week. I will drop the lowest Block exam score.

### Breakdown of Points

Attendance	10%
Homework	20%
Block Exams	60%
Recitation	10%
<b>Total</b>	<b>100%</b>

Follow the appropriate University policies to request an [accommodation for religious practices](#), or to request accommodation for missed assignments [due to University-sanctioned activities](#) or [active military service](#).

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

Overall Course Grade	ASU Letter Grade	Value
98% ≤ grade	A+	4.33
90% ≤ grade < 98%	A	4.00
87.5% ≤ grade < 90%	A-	3.67
85% ≤ grade < 87.5%	B+	3.33
80% ≤ grade < 85%	B	3.00
77.5% ≤ grade < 80%	B-	2.67
75% ≤ grade < 77.5%	C+	2.33
65% ≤ grade < 75%	C	2.00

50% ≤ grade < 65%	D	1.00
grade < 50%	E	0.00
Incomplete	I	—
Withdrawal	W	—
Audit	X	—
Academic Dishonesty	XE	0.00

Students in this course may request the Y grade option. The Y grade is considered “satisfactory” and equivalent to a C or better. Only students who earn a final grade of C or better are eligible for the Y grade. If your final grade is below a C based on the grading requirements outlined by this course syllabus, then you are not eligible for the Y grade and the D or E grade will be posted.

The Y grade will fulfill prerequisite requirements of a C or better, but the grade is not used for computing the GPA.

Before requesting the Y grade, you should consider that this option may have implications for your degree program, financial aid, or scholarship requirements. You should review your major map for current and future course requirements prior to requesting the Y grade. Some classes require a grade higher than a C to count for the major or as a prerequisite for future required coursework.

If you are planning to apply to graduate or professional programs, the satisfactory Y grade in a core or prerequisite course may be less advantageous to your application than a letter grade.

Students who would like to request the Y grade option must send an email to the instructor no later than November 23<sup>rd</sup>, 2020.

## 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 **<# of hours>**.

## 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.***

## 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.

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.

## Course Outline

Date	Topic
8/20-8/27	Introduction, Ch. 21 Electric charge & Electric Field
9/1 – 9/3	Ch. 22 Gauss's Law
9/8-9/10	Ch. 23 Electric Potential
9/15	Exam 1 (Ch. 21-22)
9/17-9/22	Ch. 24 Capacitance and Dielectrics
9/24- 9/29	Ch. 25 Current: Resistance and EMF
10/1-10/6	Ch. 26 Direct-Current circuits
10/8	Exam 2 (Ch. 23-26)
10/13-10/15	Ch. 27 Magnetic Field and Magnetic Forces
10/20-10/27	Ch. 28 Sources of Magnetic Field
10/29-11/3	Ch. 29 Electromagnetic Induction
11/05	Exam 3 (Ch. 27-29)
11/10-11/12	Ch. 30 Inductance
11/17-11/19	Ch. 31 Alternating Current
11/24-12/1	Ch. 32 Maxwell's Equations
12/3	Review, Q&A
12/08 (T)	Exam 4 (Ch. 30-32)

## 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](https://provost.asu.edu/academicintegrity) or [provost.asu.edu/academicintegrity](https://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.

## Disability Accommodations

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 Disability Resource Center (DRC) is required. Disability information is confidential.

**Disability Resource Center** ([eooss.asu.edu/drc](https://eooss.asu.edu/drc))

**Email:** DRC@asu.edu

**DRC Phone:** 480-965-1234

**DRC FAX:** 480-965-0441

## 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: [eooss.asu.edu/counseling](https://eooss.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 [pavan.pillalamarri@asu.edu](mailto:pavan.pillalamarri@asu.edu), or the faculty head, **Dr. Douglas Green**

## 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.