

Physics 130: General Physics I

West Chester University
Spring 2024

Syllabus

Updated: January 14, 2024

INSTRUCTOR

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OFFICE HOURS

- Mon. 12:30–1:50 pm ET
- Wed. 12:30–1:50 pm ET
- Thurs. 9:00–11:30 am ET

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Course information

SECTION DETAILS

Section 02:

| Activity | Day | Time | Location |
|-------------|---------------------------|-------------------|----------|
| Class: | Monday, Wednesday, Friday | 10:00-10:50 am ET | SECC 112 |
| | Monday | 2:00-2:50 pm ET | SECC 112 |
| Final exam: | Friday, 10 May | 8:00-10:00 am ET | SECC 112 |

Section 03:

| Activity | Day | Time | Location |
|-------------|---------------------------|------------------|----------|
| Class: | Monday, Wednesday, Friday | 9:00-9:50 am ET | SECC 112 |
| | Wednesday | 2:00-2:50 pm ET | SECC 112 |
| Final exam: | Wednesday, 08 May | 8:00-10:00 am ET | SECC 112 |

COURSE DESCRIPTION

Physics 130: General Physics I is an algebra-based introductory course in mechanics. Topics include kinematics, forces, energy, momentum, rotational motion, oscillations, waves, fluids, and thermodynamics. In less technical language, we will learn the mathematical description of motion (kinematics), how forces give rise to changes in motion (dynamics), and a number of applications. Laboratory (2 hours per week) provides hands-on exploration of the physical laws and concepts discussed in class. Discussion section (1 hour per week) provides guided problem-solving exercises. This course is part of a two-semester sequence designed for students pursuing programs in biological and health sciences, as well as programs outside the sciences – consult the [WCU Undergraduate Catalog](#) to determine which physics sequence is appropriate for your program.

PREREQUISITES

This course uses mathematics, including algebra, trigonometry, and basic graphing skills, on a daily basis. Students who have not completed a “pre-calculus” math course in high school or college may not be prepared for this course.

TIME COMMITMENT

This is a 4 credit-hour course. There are 4 hours of class and 2 hours of laboratory each week. In addition, this course requires (on average) 4-6 hours of reading, assignments, and studying outside of scheduled class time each week.

COURSE SCHEDULE

The **Course Schedule**, which provides lecture topics, readings, assignments deadlines, and assessment dates, is available on the course D2L homepage.

COURSE MATERIALS

1. **Textbook:** The course textbook is *Physics, 5th Edition*, by James S. Walker. An e-text of this book is accessible on Mastering Physics (see below). You may upgrade to a physical copy at additional cost – contact the [WCU campus store](#) for details.
2. **Modified Mastering Physics:** This course uses the online platform Mastering Physics for readings and assignments. You may access Mastering Physics by clicking on the links provided on the course D2L homepage.

Access to Mastering Physics is provided via the *Inclusive Access* program. Every student enrolled in PHY 130 will be charged for a 24-month subscription to Mastering Physics for *Physics 5/e*, by Walker. This charge will appear on your Bursar's Office account. More information about the *Inclusive Access* program is contained in an email sent to your WCUPA email account from the [WCU campus store](#). Questions about *Inclusive Access* should be directed to inclusiveaccess@wcupa.edu.

If you already have an active subscription for Mastering Physics for *Physics 5/e*, by Walker, then you may opt out of *Inclusive Access* and will not be charged by the Bursar's Office. One way to opt out is to use the link provided in the email sent to your WCUPA email account from the [WCU campus store](#). There may also be an opt out link on when you login to Mastering Physics via D2L.

Your Mastering Physics subscription does not include access to other Mastering products. However, PHY 140 uses the same textbook as PHY 130, so students who complete PHY 140 within 24 months may use the subscription they purchase for this course.

If you experience any technical problems with Mastering Physics, check your [system requirements](#) and consult the [get started](#) page. I recommend that you always use a “real computer” (not a mobile device) and the [Mozilla Firefox](#) web browser when working on Mastering Physics.

3. **Calculator:** You will need a stand-alone calculator with no internet or communication capabilities that can compute powers, trigonometric functions, and operate in scientific notation. You may not use a watch or mobile phone.

OFFICE HOURS

The times of my office hours are listed on page 1. By default, office hours are offered in-person on a first-come, first-serve basis. Please note that I may occasionally need to reschedule office hours, offer office hours via Zoom, or require an appointment. I will announce any change to office hours format in class as well as via the D2L announcement tool and/or email.

Please understand that office hours are a limited resource. Please come prepared with your materials at hand and specific problems to review or questions to discuss. It is not realistic to expect that I can meet with you frequently or meet for long periods of time.

STUDENT LEARNING OUTCOMES

PHY 130 is approved as a WCU General Education Science Distributive course. The student learning outcomes (SLOs) for this course are aligned with the following General Education Goals:

1. Communicate effectively:
 - a) Express oneself effectively in common college-level written forms.
2. Think critically and analytically:
 - b) Construct and/or analyze arguments in terms of their premises, assumptions, contexts, conclusions, and anticipated counter-arguments
 - c) Reach sound conclusions based on a logical analysis of evidence.
3. Employ quantitative concepts and mathematical methods:
 - a) Employ quantitative methods to examine a problem in the natural or physical world.
 - b) Apply the basic methods and thought processes of the scientific method for natural/physical science in a particular discipline.

The course SLOs are:

- A. **Describe mechanical systems** using the concepts of physics (qualitative) and the language of kinematics (quantitative).
- B. **Recognize concepts of physics** in action within mechanical systems, including force, energy, momentum, rotation, oscillations, and wave phenomena.
- C. **Analyze mechanical systems** through visualization, modeling, trigonometry, algebra, as well as diagrammatic and graphical techniques.
- D. **Solve multi-part problems** and **formulate quantitative predictions** for physical experiments.

Activities that work towards these outcomes and assessment instruments which measure these outcomes are summarized in the following table:

| SLO | Gen Ed Goal | Formative activities | Assessment |
|-----|-------------|-----------------------|---------------------------|
| A | 1a, 3a | class, homework, labs | PLAs, quizzes, final exam |
| B | 2b, 2c | class, homework, labs | PLAs, quizzes, final exam |
| C | 3a, 3b | class, homework, labs | quizzes, final exam |
| D | 2c, 3a, 3b | class, homework, labs | quizzes, final exam |

ASSESSMENT SCHEME

This course follows the official WCU scale for grades:

| Grade | Quality Points | Percentage | Interpretation |
|-------|----------------|------------|----------------|
| A | 4.00 | 93-100 | Excellent |
| A- | 3.67 | 90-92 | |
| B+ | 3.33 | 87-89 | Superior |
| B | 3.00 | 83-86 | |
| B- | 2.67 | 80-82 | |
| C+ | 2.33 | 77-79 | Average |
| C | 2.00 | 73-76 | |
| C- | 1.67 | 70-72 | |
| D+ | 1.33 | 67-69 | Below Average |
| D | 1.00 | 63-66 | |
| D- | 0.67 | 60-62 | |
| F | 0.00 | <60 | Failure |

Refer to the [WCU Undergraduate Catalog](#) for description of NG (No Grade), W, Z, and other grades. Your course grade is determined as follows:

| Percent | Category |
|---------|---|
| 15% | Laboratory |
| 10% | Homework |
| 55% | Quizzes (11% each for 5 highest scores) |
| 20% | Final exam |

15% **Laboratory:** The lab grade is determined by the instructor of your lab section. Refer to your lab section syllabus for details.

10% **Homework:** There is a homework assignment corresponding to each lecture (e.g., HW 1.3 covers material from Lecture 1.3). There are also “mixed” assignments which combine content from several lectures. All assignments are due at **11:59 pm ET** on the date listed on the **Course Schedule** (generally on Tuesdays). Homework assignments are completed on Mastering Physics. A hyperlink to each assignment is available on the course D2L homepage.

You are allowed **unlimited attempts** to solve each problem for full credit. Any work completed prior to the deadline will be counted – you do not have to complete the assignment to receive partial credit. Answers to homework problems become visible on Mastering Physics shortly after the assignment deadline.

When calculating your course grade I will add 20% to your score. Each homework question is worth 1 point. Your total homework grade for the course is calculated

$$\text{grade} = 20 + 100 \times \frac{\text{points earned}}{\text{points available}}$$

with a maximum possible score of 100. The “extra 20%” is meant to reward you for time spent on problems you never manage to solve. That is okay, and is to be expected. The “extra 20%” also serves to accommodate various situations which prevent your from completing an assignment prior to the deadline.

55% **Quizzes:** There will be six quizzes. Quizzes are 50-minute assessments offered in person at our class meeting. There is a quiz corresponding to each unit of the course (e.g., Quiz 3 covers material from Unit 3). Quizzes are “closed book”: the only aids allowed are the course equation sheet and a stand-alone calculator with no communication abilities. You may not use any other materials, access the internet, or communicate with anyone other than the instructor.

Each quiz contains two sections:

- **Multiple choice section:** There are 10 questions. There is no partial credit available for this section; I will not examine your scratch work. You will record your answers on an answer page.
- **Free response section:** There is 1 problem with multiple parts. Partial credit is available. Show all your work and write your final answers in the box provided.

Quiz scores are scaled (“curved”) to conform to a standard distribution of grades. Failure to take a quiz results in a 0 score. Quiz dates are listed on the **Course Schedule**.

When calculating your course grade, I will “drop” your one lowest quiz score. This policy serves to accommodate various situations which might cause you to miss a quiz, but which are not considered excused absences under the WCU [Excused Absences Policy](#). Your five highest quiz scores will each contribute 11% to your course grade.

20% **Final exam:** The final exam is a comprehensive exam scheduled for the time listed on page 2. The final exam is “closed book” in the same manner as quizzes. The time and date of the final exam are set by the Registrar and can change. Final exam scores may be scaled (“curved”) to conform to a standard distribution of grades. Failure to take the exam results in a 0 score. There is no final exam “exemption.”

All grades are posted on the D2L grade book. Grades earned on Mastering Physics are automatically sent to D2L, though there can be a short delay. Please allow for about 24 hours for recent grades earned in Mastering Physics to appear accurately on D2L.

Although unlikely, I reserve the right to alter the assessment scheme in order to accommodate for unforeseen circumstances or to better serve the learning objectives of the course. The deadlines of all course tasks may change – consult the **Course Schedule** regularly.

Policies

ELECTRONIC DEVICES

The only personal electronic devices that may be used in class are stand-alone calculators and tablet-style computers which use a stylus. Other electronic devices such as mobile phones, smart watches, and laptop computers are not conducive to the kind of note-taking necessary for this course. Unless explicitly required by the [Office of Educational Accessibility](#), listening devices (head phones, air pods, etc.) may not be used and must be put away.

ATTENDANCE

Attendance is not a graded item in this course.

If you miss a class then it is your responsibility to make up the missed learning opportunity by reviewing course materials on your own. Missing class does not excuse you from completing other aspects of the course on time.

EXCUSED ABSENCES

This course adheres to the WCU [Excused Absences Policy](#). If you are unable to perform an aspect of the course due to a conflict recognized by this policy (which includes University-Sanctioned Events) you must notify me in advance so that we can make arrangements.

LATE OR MISSED WORK

If you suspect that you will not be able to meet a course deadline you must notify me in advance so that we can discuss possible resolutions. The default policies on late or missed work are as follows:

- **Homework:** There are no extensions to homework assignments. No work is accepted after the deadline.
- **Quizzes:** In general, quizzes are not offered at alternate times. You may be able to take a quiz at an alternate time if:
 - i) The quiz conflicts with an event which is recognized by the WCU [Excused Absences Policy](#) – see [Excused Absences](#).
 - ii) You are sick and you adhere to the course sickness policies – see [If you get sick](#).

Failure to take a quiz results in a 0 score. Note that when calculating course grades I drop the one lowest quiz score – see [Assessment](#).

- **Final exam:** This course follows the WCU [Final Exam Policy](#). The time and date of the final exam are set by the Registrar and can change. The final exam is not offered at alternate times. Failure to take the final exam results in a 0 score. There is no final exam “exemption.”

ACCOMMODATION

If you require accommodation for any aspect of the course you must notify me in advance so that we can make arrangements. Depending on the circumstances, I may require that you provide documentation verifying the situation.

- **OEA:** If you have an ongoing medical condition which effects your ability to meet the course expectations then you should register with the [Office of Educational Accessibility](#). Please make your Letter of Accommodation available to me via the OEA portal.
- **Proctoring Center:** I cannot provide extra time in the classroom, nor can I guarantee a low-distraction environment, so if your Letter of Accommodation allows for these accommodations then you will need to use the [Proctoring Center](#) to complete assessments (quizzes and the final exam). Schedule each reservation for the date the assessment is offered in class at the time of your choice. Please book your reservation for all assessments ASAP, as availability is limited. Note that the center requires all booking requests to be submitted at least 5 business days in advance.
- **Health/wellness conditions:** If you seek accommodation for a medical condition which causes you to miss at least three consecutive school days, then contact [Student Assistance](#). I can offer accommodation based upon the advice of this office.
- **Personal emergencies:** Rarely, a personal emergency can arise which prevents a student from meeting course expectations. In such a rare circumstance I am happy to work with you in order to make appropriate arrangements. I may require that [Student Assistance](#) serve as a confidential liaison to verify the emergency.

IF YOU GET SICK

If you get sick then several of the policies above are relevant. Briefly:

- Obviously, if you are sick with a contagious disease then do not visit lecture, lab, or office hours.
- **If you will miss a quiz due to illness and you notify me prior to the start of class time then you will receive equitable accommodation.** I may require documentation which verifies the situation.
- **If you miss a quiz due to illness and you do not notify me prior to class time then you will receive no accommodation.** You will earn a 0 score on the quiz.
- If your illness will cause you to miss your lab section then you should notify your lab instructor ASAP.
- You are expected to make up for missed class by reviewing course material on your own. Once you are healthy you are welcome to attend office hours; however, I cannot summarize an entire class during an office hours visit.

TUTORING

Tutoring may be available through the [Learning Assistance & Resource Center](#). This service is free, but availability is limited. Contact this center for details. In the past, WCU physics majors have offered both free and paid tutoring through the Society of Physics Students (SPS). If this occurs this semester, details will be given via the D2L announcement tool.

TECHNOLOGY

- **Course platforms:** Course materials are maintained on the course D2L and Mastering Physics sites. You are responsible for regularly checking these sites. I may not announce in class changes to course content on these sites. As with all technology, these sites can have glitches and service outages. For this reason, check these sites frequently and do not leave tasks to the last minute.
- **Communication:** I use the D2L announcement tool to make class-wide announcements. I use email for individual correspondence and for time-sensitive class-wide communications. Except in the event of a technical failure or an emergency, I will only use University email accounts (mine and yours) to correspond.
- **Email:** Emails should be written with appropriate language and etiquette. Please consult the guide [here](#).
- **Zoom:** This course may use Zoom for virtual class meetings or office hours. You are expected have basic competence using Zoom. You may wish to consult the [IST Zoom documentation](#). You are welcome to blur your background, or use a virtual background, so long as the image is not inappropriate or distracting. Here are [instructions for setting up a virtual background](#), as well as [WCU-themed virtual background images](#). Zoom meetings will require that you use your WCUPA Zoom account (i.e., the one linked to your University email address).
- **Recording:** Students do not have permission to record class meetings, whether held in person or virtually. This includes recording audio or video, or taking photographs. Such recording may also be restricted by law. See [Accommodation](#) above and [Intellectual property](#) below.

ACADEMIC INTEGRITY

Students are expected to follow the WCU Student Code of Conduct and adhere to the rules and guidelines on academic integrity described in the [WCU Undergraduate Catalog](#). Here are a few relevant issues for this course:

- **Online platforms:** D2L, Mastering Physics, and Zoom are extensions of the classroom and as such all WCU rules regarding student behavior apply on these platforms. Do not violate the copyrights of materials on these platforms. Do not misrepresent your identity on these platforms, either by impersonating someone else or by allowing another person to impersonate you.

- **Collaboration:** Students are encouraged to study together and collaborate on assignments. However, you should go through the process of solving each homework problem yourself.
- **Learning resources:** Students are welcome to use additional learning resources beyond those provided by the instructor to help them master course material. Examples of learning resources include textbooks, instructional videos, informational websites, and private tutors. Do not use any source of solutions to assigned problems, whether found online or elsewhere. Do not use so-called tutoring websites which offer solutions to problems upon request. These websites include (but are not limited to) Course Hero, Chegg, and Clutch Prep. Using these sources or websites could lead to a violation of WCU rules on academic integrity. If you are unsure about whether the use of a website or product is legitimate, ask me before using.
- **Assessments:** Quizzes and the final exam are “closed book” assessments. You may not solicit help from materials, a person, or an entity to complete an assessment. You may not offer help in any form to another student or entity working to complete any aspect of an assessment.
- **Copyright violations: Students do not have permission to share course content with any person, website, or entity.** Course content contains intellectual property which is protected by copyright law. Sharing includes posting content on a website or in a public place, or storing content on a computer that is used by others. See [Intellectual property](#) below.
- **Online activity logs:** Be aware that the course platforms D2L, Mastering Physics, and Zoom provide records of user activity to the instructor and the University. In the event of a suspected academic integrity violation, this data will be examined and may serve as evidence of misconduct.

Students who violate WCU rules of academic integrity may receive an [Academic Integrity Violation Report](#), and may receive a failing grade (F) in the course.

INTELLECTUAL PROPERTY

The instructor utilizes copyrighted materials under the “Freedom and Innovation Revitalizing the United States Entrepreneurship Act of 2007” (Fair Use Act). Apart from such copyrighted materials, all other intellectual property associated with this course is owned and copyrighted by the instructor, including, but not limited to, lectures, course discussions, course notes, slides, assessment instruments such as exams, and supplementary materials posted or provided to students authored by the instructor. No recording, copying, storage in a retrieval system, or dissemination in any form by any means of the intellectual property of the instructor, in whole or in part, is permitted without prior written permission of the instructor. When such permission is granted, it must specify the utilization of the intellectual property and all such permissions and waivers shall terminate on the last day of the semester in which this course is held.

Statements Common to All WCU Undergraduate Syllabi



ACADEMIC & PERSONAL INTEGRITY

It is the responsibility of each student to adhere to the university's standards for academic integrity. Violations of academic integrity include any act that violates the rights of another student in academic work, that involves misrepresentation of your own work, or that disrupts the instruction of the course. Other violations include (but are not limited to): cheating on assignments or examinations; plagiarizing, which means copying any part of another's work and/or using ideas of another and presenting them as one's own without giving proper credit to the source; selling, purchasing, or exchanging of term papers; falsifying of information; and using your own work from one class to fulfill the assignment for another class without significant modification. Proof of academic misconduct can result in the automatic failure and removal from this course. For questions regarding Academic Integrity, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to the Department Undergraduate Handbook, the Undergraduate Catalog, the Ram's Eye View, and the University website at www.wcupa.edu.

STUDENTS WITH DISABILITIES

West Chester University is committed to providing equitable access to the full WCU experience for Golden Rams of all abilities. Students should contact the Office of Educational Accessibility (OEA) to establish accommodations if they have had accommodations in the past or if they believe they may be eligible for accommodations due to a disability, whether or not it may be readily apparent. There is no deadline for disclosing to OEA or for requesting to use approved accommodations in a given course. However, accommodations can only be applied to future assignments or exams; that is, they can't be applied retroactively. Please share your letter from OEA as soon as possible so that we can discuss accommodations.

If you have concerns related to disability discrimination, please contact the university's ADA Coordinator in the Office of Diversity, Equity, and Inclusion: <https://www.wcupa.edu/admin/diversityEquityInclusion/> or 610-436-2433.

EXCUSED ABSENCES POLICY

Students are advised to carefully read and comply with the excused absences policy, including absences for university-sanctioned events, contained in the WCU Undergraduate Catalog. In particular, please note that the "responsibility for meeting academic requirements rests with the student," that this policy does not excuse students from completing required academic work, and that professors can require a "fair alternative" to attendance on those days that students must be absent from class in order to participate in a University-Sanctioned Event.

REPORTING INCIDENTS OF SEXUAL VIOLENCE

West Chester University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to comply with the requirements of Title IX of the Education Amendments of 1972 and the University's commitment to offering supportive measures in accordance with the new regulations issued under Title IX, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. **Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University Protection of Minors Policy.** Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: <https://www.wcupa.edu/admin/diversityEquityInclusion/sexualMisconduct/default.aspx>

INCLUSIVE LEARNING ENVIRONMENT AND ANTI-RACIST STATEMENT

Diversity, equity, and inclusion are central to West Chester University's mission as reflected in our [Mission Statement](#), [Values Statement](#), [Vision Statement](#) and [Strategic Plan: Pathways to Student Success](#). We disavow racism and all actions that silence, threaten, or degrade historically marginalized groups in the U.S. We acknowledge that all members of this learning community may experience harm stemming from forms of oppression including but not limited to classism, ableism, heterosexism, sexism, Islamophobia, anti-Semitism, and xenophobia, and recognize that these forms of oppression are compounded by racism. Our core commitment as an institution of higher education shapes our expectation for behavior within this learning community, which represents diverse individual beliefs, backgrounds, and experiences. Courteous and respectful behavior, interactions, and responses are expected from all members of the University. We must work together to make this a safe and productive learning environment for everyone. Part of this work is recognizing how race and other aspects of who we are shape our beliefs and our experiences as individuals. It is not enough to condemn acts of racism. For real, sustainable change, we must stand together as a diverse coalition against racism and oppression of any form, anywhere, at any time.

Resources for education and action are available through WCU's [Office for Diversity, Equity, and Inclusion](#) (ODEI), DEI committees within departments or colleges, the student [ombudsperson](#), and centers on campus committed to doing this work (e.g., [Dowdy Multicultural Center](#), [Center for Women and Gender Equity](#), and the [Center for Trans and Queer Advocacy](#)). Guidance on how to report incidents of discrimination and harassment is available at the University's [Office of Diversity, Equity and Inclusion](#).

EMERGENCY PREPAREDNESS

All students are encouraged to sign up for the University's free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information, visit www.wcupa.edu/wcualert. To report an emergency, call the Department of Public Safety at 610-436-3311.

ELECTRONIC MAIL POLICY

It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course.