



BALL STATE UNIVERSITY

Fall 2022

PHYC 110: General Physics 1

Indiana Academy for Science, Mathematics, and Humanities

BSU Credits	4 credit hours	College of Science and Humanities	Department of Physics and Astronomy
Instructor	Krista Hook	Office Location	Elliot – B027
Email	Krista.Hook@bsu.edu	Office Hours	MWF: 10:00am – 12:00pm 4:00pm – 7:00pm T: 2:00pm – 3:30pm
Meeting Times	MWF: 12:00pm – 1:00pm (Class) T: 11:00am – 1:00pm (Lab)	Meeting Location	TBA
Prerequisite(s)	MATH 112 or MATH 114, trigonometry or appropriate trigonometry sub scores on mathematics placement exam or passing grade in high school physics.		
Course Description	Studies the laws of Newtonian mechanics. Introductory fluid statics and dynamics, heat and thermodynamics, and wave motion and sound. Recommended background: one year of college preparatory physics in high school.		
Core Transfer Library Course	Physics 1 & 2 (Two course sequence), Algebra-Based		
Textbook and/or Course Materials	Rice University Open Stax College Physics; Ranking Task Exercises in Physics (O’kuma)		
Course Learning Outcomes	Students should be able to adequately express their understanding in Physics both in a conceptual multiple-choice format, and in a rigorous mathematical free-response format.		
Important Deadlines	If you wish to drop your class(es), you must do so by August 26, 2022. The withdrawal deadline is in October 2022 and will be announced once published by the University Registrar. Dropping/Withdrawing from a class at your high school does not drop/withdraw you from your BSU Dual Credit class. Instructions for dropping/withdrawing can be found in the Dual Credit Student and Parent Handbook.		

How BSU Grade will be Calculated	<p style="text-align: center;">PHYC 110</p> <p>Exams (Units and Finals).....50% of course grade Laboratory Work.....35% of course grade Homework and Participation....10% of course grade Quizzes....5% of course grade</p>																									
How High School Grade will be Calculated	<p>Same as above</p>																									
BSU Grading Scale	<p>Ball State grading scale will be entered prior to the course starting</p>																									
High School Grading Scale	<p>Your high school scale</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">A: 93-100%</td> <td style="width: 40%;">C: 73-76.9%</td> </tr> <tr> <td>A: 90-92.9%</td> <td>C: 70-72.9%</td> </tr> <tr> <td>B+: 87-89.9%</td> <td>D* (retake course): 0-69.9%</td> </tr> <tr> <td>B: 83-86.9%</td> <td></td> </tr> <tr> <td>B-: 80-82.9%</td> <td></td> </tr> <tr> <td>C+: 77-79.9%</td> <td></td> </tr> </table>		A: 93-100%	C: 73-76.9%	A: 90-92.9%	C: 70-72.9%	B+: 87-89.9%	D* (retake course): 0-69.9%	B: 83-86.9%		B-: 80-82.9%		C+: 77-79.9%													
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Schedule of Assignments	<p style="text-align: center;">TENTATIVE SCHEDULE AS FOLLOWS</p> <div style="background-color: #cccccc; text-align: center; padding: 5px;">Fall 2022 Tentative Semester Schedule</div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">Week</th> <th style="width: 60%;">Lecture</th> <th style="width: 30%;">Lab</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>PB&Js and The Scientific Process</td> <td>Measure Twice, Cut Once Lab (Measurement Uncertainty Lab)</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Understanding the Basics (mass, inertia, moment of inertia, and change)</td> <td>Understanding Δ Lab (Measuring displacement and speed)</td> </tr> <tr> <td style="text-align: center;">3</td> <td>Complicating Simple Values – linearly and angularly (1-D Measures and Time)</td> <td>1-D Determining g Lab</td> </tr> <tr> <td style="text-align: center;">4</td> <td>X and Y (Vectors, Scalars, Units)</td> <td>2-D Determining g Lab</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Fantastical Forces and Where to Find Them (Individual Forces and Newton)</td> <td>Projectile Motion Lab</td> </tr> <tr> <td style="text-align: center;">6</td> <td>Fantastical Forces and How to Put Them Back because Now they're getting complicated (Net Force)</td> <td>Projectile Motion Lab w/ Force Meters</td> </tr> <tr> <td style="text-align: center;">7</td> <td>Have you heard of Momentum? Well, I have a story for you ...</td> <td>Force Lab but Harder MORE Challenging!</td> </tr> </tbody> </table>		Week	Lecture	Lab	1	PB&Js and The Scientific Process	Measure Twice, Cut Once Lab (Measurement Uncertainty Lab)	2	Understanding the Basics (mass, inertia, moment of inertia, and change)	Understanding Δ Lab (Measuring displacement and speed)	3	Complicating Simple Values – linearly and angularly (1-D Measures and Time)	1-D Determining g Lab	4	X and Y (Vectors, Scalars, Units)	2-D Determining g Lab	5	Fantastical Forces and Where to Find Them (Individual Forces and Newton)	Projectile Motion Lab	6	Fantastical Forces and How to Put Them Back because Now they're getting complicated (Net Force)	Projectile Motion Lab w/ Force Meters	7	Have you heard of Momentum? Well, I have a story for you ...	Force Lab but Harder MORE Challenging!
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	(Conservation of Momentum)	(Friction Lab)
8	Momentum When it isn't conserved	Friction Lab Continued
9	Momentum and Friends (Impulse)	Insurance Claims on Car Accident Lab
10	Hooke's Law and Hooke, who was an awesome dude	Springs! Lab
11	Wait – Why did you tell us this before??? (Energy)	Simple Energy Exercises
12	What we did before but easier (Conservation of Energy)	Energy: Insurance Claims on Car Accident Lab
13	When Energy isn't conserved (Work and Energy)	Introducing Work Lab
14	NO SCHOOL – THANKSGIVING	NO SCHOOL – T-DAY
15	Introduction to Angular Momentum	Angular Measurements Lab
16	Because regular mechanics was too easy (Angular Kinematics and Centripetal Acceleration)	Race cars and Curvy Roads Lab
17	Review for Final (Late Work Deadline)	Review for Final
18	FINALS WEEK	Extra Credit Due

Spring 2023 Tentative Semester Schedule

Week	Lecture	Lab
1	Applying Kinematics Angularly (Angular Kinematics and Centripetal Acceleration)	Orbital Lab
2	Conservation of Angular Momentum	When Physics Got Too Easy Lab (Net Torque = 0 Lab)
3	Torque, the New Enemy (When Angular Momentum is not conserved)	Applying Torque Lab
4	Linear, Angular, and Energy Considerations	Projectile Motion Revisited
5	Motion that is Harmonious	Pendulums – what are they hiding from us?

	6	Waves Mechanics (Superposition and standing waves)	Making Waves Stand Lab
	7	Simple Harmonic Springs	Harmonic Spring Lab
	8	Waves and Sound and Light ... OH MY!	Speed of Sound
	9	Doppler Effect and applying what we thought we knew	Phet Sound Lab
	10	NO SCHOOL – SPRING BREAK	NO SCHOOL – Spring Break!
	11	Reviewing: Linear and Angular Kinematics	Water Balloon Challenge: Day 1 Calculations
	12	Reviewing: Dynamics Linear and Angular	Water Balloon Challenge: Day 2 Testing / Calculations
	13	Reviewing: Momentum & Impulse	Water Balloon Challenge: Day 3 Round 1 and Start of Round 2
	14	Reviewing: Energy & Work	Water Balloon Challenge: Day 3 Round 2 and Final Challenges
	15	Reviewing: Torque and Rotational Motion	Debate Project Day 1
	16	Reviewing: Circular Motion and Gravitation	Debate Project Day 2
	17	Reviewing: Simple Harmonic Motion	Debate Project Day 3
	18	Practice Exam and Final Review of All Topics AP Exam Preparation (Late Work Deadline)	Final Review and AP Exam Preparation
	19	FINALS WEEK May 11 th – AP Physics I Exam Check this link for more information: https://apcentral.collegeboard.org/exam-administration-ordering-scores/exam-dates	Extra Credit Due
Classroom Policies & Information	<p>Laptop Policy</p> <p>While in class or lab, please keep computer use restricted to classroom-relevant tasks.</p> <p>Laptops or tablets are required for lab sessions.</p>		

	<p>Laptops or tablets are also required for some homework, quizzes, and other activities.</p> <p>Laptops or tablets are permitted but not required during class for note-taking or other class-related needs.</p>
Attendance Policy	<p>Students arriving after the start of class may receive a Tardy. Students arriving after 20 minutes (or not at all!) may receive an Absence. Student is responsible for all information missed due to not being present.</p>
Late Work Policy	<p>Late work is defined as work that is submitted more than 24 hrs late. Any work not submitted automatically is scored as a zero (0 pts.).</p> <p>If work is submitted but it has been more than 24 hrs since it was due, the work will be graded with a 50% deduction of points in the gradebook, regardless of delay or reason.</p> <p>Last day to submit late work will be the Friday BEFORE finals week. After this time, all zeroes (0 pts.) will remain and cannot be made-up or submitted for points.</p>
Make-up/Retake Exam Policy	<p>Make-up exams may only be taken if the student received an excused absence for the missed test.</p> <p>There are no make-ups for Labs. The lowest Lab grade will be exempted at the end of the semester.</p>
Dual Credit-High School Credit Policy Statement	<p>Students may choose to enroll in Ball State's Dual Credit Program to earn college credit for PHYC 110, General Physics 1, from Ball State at a reduced rate of tuition (\$250 flat fee). Students who are eligible for free or reduced lunch this academic year may enroll at no charge if verified by the school.</p> <p>To enroll in Ball State's Dual Credit Program, students should have a 3.0 GPA on a 4.0 scale and complete the application & registration process <u>before the given deadline</u>. Ball State will bill students via postal mail; no money should be submitted to the high school. College credit can only be earned during the semester (or, in the case of year-long classes, during the academic year) in which the student is enrolled. Late enrollments are <u>not</u> permitted.</p> <p>Whether college credit earned through dual credit courses will be accepted by another institution of higher education is determined by the college or university to which a student is seeking admission. Before enrolling through Ball State's Dual Credit Program, students should check directly with that institution to determine if a course will be accepted and how it will be counted toward graduation requirements. <i>Refunds will not be issued if Ball State credits are not able to be transferred.</i> In most cases, students will need to earn a C or better to transfer credit from Ball State to another institution. Grades of D or lower earned in Ball State Dual Credit courses are recorded on a student's Ball State transcript but may not be able to transfer.</p>

	<p>The rigor of this course will be periodically reviewed by Ball State University faculty in an effort to maintain the high quality of education that each student receives. To learn more about Ball State’s Dual Credit Program, visit bsu.edu/dualcredit, call 765-285-1581 or email dualcredit@bsu.edu.</p>
<p>BSU Student Rights and Responsibilities</p>	<p>While enrolled in Ball State’s Dual Credit Program, you are expected to abide by the academic rules of behavior befitting a university student. You should read the <i>Dual Credit Student and Parent Handbook</i>, located at bsu.edu/dualcredit. In particular, review the Code of Student Rights and Responsibilities, focusing on the policies regarding student rights and responsibilities, behavior, academic integrity, and related procedures.</p> <p>The <i>Dual Credit Student and Parent Handbook</i> includes information regarding student qualifications, prerequisites, available courses, responsibilities, financial aid stipulations, transferability, withdrawal, refund and billing policies and more. It is important that you review the information contained in it.</p>
<p>Student Academic Ethics Policy</p>	<p>Actions which include but are not limited to cheating, plagiarism, falsely claiming to have completed work, cooperating with another person in academic dishonesty, knowingly destroying or altering another student’s work, or attempting to commit an act of academic dishonesty that violates the Student Academic Ethics Policy (http://www.bsu.edu/associateprovost/academicethics).</p> <p>The consequences of academic dishonesty are determined on a case-by-case basis by each instructor and may include but are not limited to one or more of the following academic sanctions: informal meeting, removal from dual credit course, dismissal from the university, or other appropriate consequence.</p>
<p>Policy on the Americans with Disabilities Act (ADA)</p>	<p>If you need course adaptations or accommodations because of a disability, please contact the <i>Office of Disability Services</i>. The <i>Office of Disability Services</i> coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability services can be contacted at 765-285-5293 or dsd@bsu.edu.</p>
<p>Title IX – Sexual Misconduct</p>	<p>Ball State University is committed to establishing and maintaining an effective, safe, and nondiscriminatory educational environment in which all individuals are treated with respect and dignity. For information about Ball State University’s Interim Title IX Policy and Procedures, please visit our website. Please note that the University’s policy and procedures have undergone significant revisions starting with the 2020-21 school year and ongoing.</p> <p>Consistent with the University’s Notice of Nondiscrimination and in accordance with the U.S. Department of Education’s implementing regulations for Title IX of the Education Amendments of 1972 (“Title IX”), Ball State University prohibits sexual harassment that occurs within its education programs and activities. This prohibition extends to all applicants for admission or employment and to all students (any status) and all employees (any status). An individual who is found to have committed sexual harassment in violation of this policy is subject to the full range of University discipline, up to and including termination of employment or expulsion. The University will provide persons who have experienced sexual</p>

	<p>harassment with ongoing remedies as reasonably necessary to restore or preserve access to the University’s education program and activities.</p> <p>Inquiries concerning the specific application of Title IX at Ball State should be directed to Ms. Katie Slabaugh, Associate Dean of Students/Title IX Coordinator in the Frank A. Bracken Administration Building, room 238, 765-285-1545, kslabaugh@bsu.edu. Persons can also contact the U.S. Department of Education Office for Civil Rights, Washington, D.C. 20202-1328, 1-800-421-3481, ocr@ed.gov.</p>
Diversity Statement	<p>Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge and through university resources found at http://cms.bsu.edu/campuslife/multiculturalcenter.</p>
The Learning Center	<p>The Learning Center offers free Tutoring and Academic Coaching for many courses at Ball State. Students can make appointments for online (Zoom) or in-person (NQ 350) appointments. Unvaccinated students are required to wear masks and practice physical distancing in the Learning Center.</p> <p>To make an appointment, visit my.bsu.edu and click on “TutorTrac” in the Additional Tools section, or just go directly to https://ballstate.go-redrock.com.</p> <p>Testing accommodations for students with disabilities are available for students who have received the appropriate documentation from Disability Services. Tests may be administered in the Learning Center.</p> <p>Supplemental Instruction is available in select courses. If you have an SI leader for your course, that person will provide students with information the first week of school regarding weekly study sessions.</p> <p>For more information about all of our programming, visit bsu.edu/learningcenter or call 765-285-1006.</p>
The Writing Center	<p>All writers improve with practice and feedback, so as a student in this course, you are encouraged to use the Writing Center (in Robert Bell 295, Bracken Library, or online) to get additional feedback on your writing. To schedule a free appointment to discuss your writing, go to www.bsu.edu/writingcenter. Online and in-person appointments are available seven days a week; however, plan ahead because appointments book quickly!</p>
Syllabus Change Policy	<p>This syllabus is a guide to the course and may be subject to change with reasonable advanced notice as course needs arise.</p>