



BALL STATE UNIVERSITY

Fall 2022

PHYC 100: Conceptual Physics

Indiana Academy for Science, Mathematics, and Humanities

BSU Credits	3 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: 1:00pm – 2:00pm (Class) T: 4:00am – 6:00pm (Lab)	Meeting Location	TBA
Prerequisite(s)	None		
Course Description	Includes a survey of physics with conceptual emphasis on basic classical and modern concepts of matter, motion, energy, and forces with application to mechanics, heat, sound, electricity and magnetism, light, atomic, nuclear, and elementary particles.		
Core Transfer Library Course	Survey of Physical Science		
Textbook and/or Course Materials	Conceptual Physics by Paul G Hewitt College Physics – OpenStax (Online Text) - https://openstax.org/details/books/college-physics Scientific Calculator (example: TI-30)		
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 100</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: 50%;">A: 93-100%</td> <td style="width: 50%;">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%													
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%																										
Schedule of Assignments	<p style="text-align: center;">TENTATIVE SCHEDULE AS FOLLOWS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #cccccc;"> <th colspan="3" style="text-align: center;">Fall 2022 Tentative Semester Schedule</th> </tr> <tr style="background-color: #cccccc;"> <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>Complicating Simple Values – linearly and angularly</td> <td>Understanding Δ Lab (Measuring speed & velocity)</td> </tr> <tr> <td style="text-align: center;">3</td> <td>1-D Measures and Time</td> <td>Easy Graphing Lab</td> </tr> <tr> <td style="text-align: center;">4</td> <td>X, Y, and Z ... OH MY! (Vectors and Scalars and Units OH MY!)</td> <td>When 1-Dimension won't do, Galileo Galilei but More Modern Lab (Scalars and Vectors 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</td> <td>Force Lab but Harder MORE Challenging!</td> </tr> </tbody> </table>		Fall 2022 Tentative Semester Schedule			Week	Lecture	Lab	1	PB&Js and The Scientific Process	Measure Twice, Cut Once Lab (Measurement Uncertainty Lab)	2	Complicating Simple Values – linearly and angularly	Understanding Δ Lab (Measuring speed & velocity)	3	1-D Measures and Time	Easy Graphing Lab	4	X, Y, and Z ... OH MY! (Vectors and Scalars and Units OH MY!)	When 1-Dimension won't do, Galileo Galilei but More Modern Lab (Scalars and Vectors 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	Force Lab but Harder MORE Challenging!
Fall 2022 Tentative Semester Schedule																										
Week	Lecture	Lab																								
1	PB&Js and The Scientific Process	Measure Twice, Cut Once Lab (Measurement Uncertainty Lab)																								
2	Complicating Simple Values – linearly and angularly	Understanding Δ Lab (Measuring speed & velocity)																								
3	1-D Measures and Time	Easy Graphing Lab																								
4	X, Y, and Z ... OH MY! (Vectors and Scalars and Units OH MY!)	When 1-Dimension won't do, Galileo Galilei but More Modern Lab (Scalars and Vectors 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	Force Lab but Harder MORE Challenging!																								

	(Net Force)	(Friction Lab)
7	Have you heard of Momentum? Well, I have a story for you ... (Conservation of Momentum)	Insurance Claims on Car Accident Lab
8	Momentum and Friends (Impulse and Conservation of Momentum)	Upgraded Projectiles w/ Springs
9	Momentum but Harder MORE Challenging! (Angular Momentum)	When Physics Got Too Easy Lab (Net Torque = 0 Lab)
10	Gravitation, as viewed by Einstein	Pendulums – what are they hiding from us?
11	Oscillations and how Frequent (f) ly they affect our lives	Measuring g again but in a different way
12	Torque, the New Enemy	Angular Motion Lab
13	What if Linear and Angular got Married?	A projectile, a Target, and some Magic
14	NO SCHOOL – THANKSGIVING	NO SCHOOL – T-DAY
15	Wait – Why did you tell us this before??? (Energy and Work)	Easier Force Lab
16	This is way easier now! (Conservation of Energy)	Easier Projectile Motion Lab
17	When Energy isn't Conserved and Why	Review for Final
18	FINALS WEEK	Extra Credit Due

Spring 2023 Tentative Semester Schedule

Week	Lecture	Lab
1	Waves – Social and Non-Social	Making Waves Stand
2	Waves and Sound and Light ... OH MY! (yes, I did it again because it was funny the first time)	Speed of Sound
3	Electrons and a guy named Coulomb	Electric Field Lab
4	Electronics and The Bits (Volts and Current and Electric Potential ... OH MY! (ok, I'll stop)	Basic Circuits (Basic tools of measure discussion)

5	The Circuits are Fighting Back (Resistance and Measuring Current through them)	More Complicated Circuits (Using tools to measure current)
6	Electromagnetism (I promise that's a real word) and a guy named Ohms (also a real guy)	Checking Physics (Ohm's Law)
7	The Complex ways Circuits Test Our Patience	Series and Parallels and ... Circuits ... oh my!
8	What if Electric Fields had a friend? (Magnetic Fields and Inductance)	How to make a Motor
9	Circuits and Capacitors	Adding to Circuits (Capacitors)
10	NO SCHOOL – SPRING BREAK	NO SCHOOL – Spring Break!
11	Light – What is it? (Compton Effect, Photoelectric Effect, and sources)	Spectral Lab
12	Refraction and Reflection	Who's that Pretty Person in that Mirror there?
13	Refraction and Reflection but now Curved	Finding the Image with curved Lens and Mirrors
14	Interference and Diffraction and Dispersion ...	Double-Slit Experiment
15	Heating and Temperature: Ideal Gas	Watching a Pot Boil
16	Spicy Metals (Radioactivity)	Decay using Dice and Pennies
17	Radiation in Everyday Life	Smoke Detectors Lab
18	Quantum Mechanics and the probability of manifesting a couch in the classroom (a demonstration)	Review for Final
19	FINALS WEEK	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>
---	---

	Laptops or tablets are permitted but not required during class for note-taking or other class-related needs.
Attendance Policy	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.
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 100, Conceptual Physics, from Ball State at a reduced rate of tuition (\$25 per credit or \$75 total). 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</p>

	<p>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 Dual Credit Student and Parent Handbook, 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 Dual Credit Student and Parent Handbook 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 Office of Disability Services. The Office of Disability Services 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 harassment with ongoing remedies as reasonably necessary to restore or preserve access to the University’s education program and activities.</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 .
Diversity Statement	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 .
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	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!
Syllabus Change Policy	This syllabus is a guide to the course and may be subject to change with reasonable advanced notice as course needs arise.