

Syllabus College Physics I (Physics 1145) Fall 2024 (last updated 8/24/2024)

Time and place: MWF 8-8:50 104 Physics

Instructor: Dr. Agnes Vojta, 206 Physics, vojtaa@mst.edu

Required materials: “College Physics” by Knight, Jones, and Field, 1st or 2nd edition, Chapters 1-16; Lab manual (purchase at S&T bookstore). Computer with internet access, scanner or scanning app

Goals: The main goals of this course are to develop an understanding of the basic principles of mechanics (statics and dynamics) and to acquire the proper techniques for the solution of physical problems. For topics covered see schedule of assignments.

Prerequisites: Math 1160 (Trigonometry) and Math 1140 or 1120 (College Algebra)

Course format: Alternating lectures and recitation-and-discussion sessions. The lectures will review and clarify important concepts of the reading material and present examples for physical principles and problem-solving methods. **You are expected to have read the reading assignment prior to the lecture.** The recitations will be used to discuss conceptual questions and practice problem solving. You are encouraged to ask questions at any time during lectures.

Office hours/Learning assistance: Thursday, 2-4:30pm, 6-7:30pm, 202 Physics

Sources of course points:

Tests: Three tests will be given during class time on the following days: Wed, September 18; Wed, October 16; Friday, November 15. Each test counts 120 points.

Final exam (Friday, December 13, 3:00-4:30pm): 120 points

End Material Quiz will be given during the last class period, December 6. 40 points

Quizzes/In-class worksheets. 10 pts each.

Homework is due Friday 8am via Canvas. 10 points each set.

The three test-preparation homeworks as well as the assignment in the last week of class will **not** be graded; they serve solely as preparation for the tests and the end material quiz.

Lab: 6 lab exercises, lowest score will be dropped. 20 pts each.

Points available:

In order to make up for missed assignments or having a bad day:

- the lowest score of the four tests (three test + final) will be dropped.
- you can earn at least 220 points for quizzes/homework/worksheets, but grade cuts are based on 200 points.
- the lowest lab score of six will be dropped.

If you are sick on an exam day, do not come to class. Contact me to arrange a makeup.

If you must participate in a conflicting major university or intercollegiate event during a test, you need to contact me a week prior to the exam to arrange a makeup. I will need a letter or email from the event's Missouri S&T Faculty Sponsor.

3 tests + final, each 120 points, highest 3	360
End Material Quiz	40
Quizzes, homework, in-class problems, each 10 pts, at least 20 assignments	200
Lab	<u>100</u>
	<u>700</u> total

Grading Scale:

A for 90% of 700	≥	630	D for 60% of 700	≥	420
B for 80% of 700	≥	560	F for less than 60%	<	420
C for 70% of 700	≥	490			

Regrades and grade sheet corrections

Requests for regrades must be made in writing no later than the class following the class in which the assignment or test was returned. If a score has been entered incorrectly, you must bring me the assignment in question. Requests for corrections must be made before the beginning of the last class in the semester. No changes will be made after the end material quiz has been given.

Attendance: Do not come to class if you feel sick or tested positive for COVID-19. In case of illness, you may request to participate in class via Zoom, if you contact me ahead of time.

If you have a disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need Student Accessibility and Testing (<http://saat.mst.edu>, 203 Norwood Hall, 341-6655, dss@mst.edu) verifying your disability and specifying the accommodation you will need before I can arrange your accommodation.

Student Honor Code and Academic Integrity: All students are expected to follow the Honor Code

<https://stuco.mst.edu/about/honor-code/>. Student Academic Regulations

<https://registrar.mst.edu/academicregs/conductofstudents/> describes the student standard of conduct relative to the University of Missouri System's Collected Rules and Regulations section 200.010, and offers descriptions of academic dishonesty including cheating, plagiarism, sabotage, and unauthorized use of artificially generated content, any of which will be reported to the Vice Provost for Undergraduate Education. Other resources for students regarding academic integrity can be found [online](#).

Title IX policies, resources and reporting options are available at <http://titleix.mst.edu>.

Emergency exit: classroom egress maps are posted at <http://designconstruction.mst.edu/floorplan/>. Please take a moment to identify the emergency exit.

Unresolved complaints: It is hoped that any problems can be resolved through discussions between student and instructor. If there are any complaints that cannot be resolved you may contact Dr. Klaus Woelk, Associate Dean for Academic Affairs (woelk@mst.edu).

Unresolved complaints about laboratory instructors: Please contact the department chair, Dr. Thomas Vojta (vojtat@mst.edu).

Physics 1145 – Fall 2024 Schedule of assignments (Subject to change. **Last updated 4/16/2024**)

You are expected to have done the assigned reading **before** coming to class.
 Homework is due Friday 8am; you need to upload a pdf file of your solution to Canvas.

Date	Lec #	Topic	Reading	Homework
Aug 19	1	Introduction. Ch. 1: Motion	1.1-5	
Aug 21	2	Ch. 2: Motion in one dimension: Velocity.	2.1-4	
Aug 23	3	Motion in 1-d: Acceleration	2.5	<u>Homework #1</u>
Aug 26	4	Motion in 1-d: Problem solving	2.6-7	
Aug 28	5	Motion in 1-d		
Aug 30	6	Ch. 3: Vectors	3.1-3	<u>Homework #2</u>
Sept 2		Labor Day – no class		
Sept 4	7	Motion in 2 dimensions	3.4-7	
Sept 6	8	Projectile motion		<u>Homework #3</u>
Sept 9	9	Circular motion	3.8; 6.1-2	
Sept 11	10	Motion in 2 dimensions		
Sept 13	11	Ch. 4: Forces. Newton’s 1 st and 2 nd Law	4.1-7	<u>Homework #4</u>
Sept 16	12	Review		<u>Test PrepHW #1</u>
Sept 18		Test 1 Ch. 1-3		
Sept 20	13	Ch. 5: Applying Newton’s laws.	5.1-4	
Sept 23	14	Friction	5.5-6	
Sept 25	15	Interacting Objects	4.8; 5.7-8	
Sept 27		Ch. 6: Circular motion	6.3-4	<u>Homework #6</u>
Sept 30	17	Forces		
Oct 2	18	Forces.		
Oct 4	19	Circular orbits, gravity	6.5-7	<u>Homework #7</u>
Oct 7	20	Circular orbits, gravity		
Oct 9	21	Review		
Oct 11	22	Fall Break – No Class		<u>Homework #8</u>
Oct 14	23	Review		<u>Test PrepHW #2</u>
Oct 16		Test 2 Ch. 4-6		
Oct 18	24	Ch. 7: Rotation	7.1-3	

Oct 21	25	Rotational dynamics	7.4-6	
Oct 23	26	Ch. 8:Equilibrium	8.1,2	
Oct 25	27	Springs	8.3	<u>Homework #10</u>
Oct 28	28	Ch. 9: Linear Momentum	9.1-3	
Oct 30	29	Linear Momentum	9.4-6	
Nov 1	30	Angular momentum	9.7	<u>Homework #11</u>
Nov 4	31	Ch. 10: Energy, work, potential E.	10.1-6	
Nov 6	32	Energy	10.7-8	
Nov 8	33	Energy		<u>Homework #12</u>
Nov 11	34	Review		
Nov 13	35	Review		<u>Test PrepHW #3</u>
Nov 15		Test 3 Ch. 7-10		
Nov 18	36	Ch. 13: Static Fluids	13. 1-4	
Nov 20	37	Fluid dynamics	13. 5-7	
Nov 22	38	Ch. 14: Oscillations	14. 1-5	<u>Homework #14</u>
Nov 24	- 12/1	Thanksgiving Break – no classes		
Dec 2	39	Oscillations		
Dec 4	40	Ch. 15: Waves	15. 1-4	
Dec 6		End Material Quiz Ch. 13+14		<u>Homework #15</u>

Final Exam: Friday, December 13, 3:00-4:30pm

(Our final is only 90 minutes.)