

Lab Course Syllabus: PHYS 1624 & PHYS 1144
McCOY College of Science, Math and Engineering
Midwestern State University
Spring 2026

Contact Information

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Lab Course Description

This course is designed in such a way that the students get a basic but thorough introduction to the concepts and principles of physics. This will enable them to build up their skills and help them in the other higher level physics courses.

Textbook & Instructional Materials

All Material will be provided in the lab by the lab teaching assistant or/and the professor. The list of labs is given below. The number of labs to be done in a semester is 10. There will be no final exam or tests in the labs.

List of Labs:

- Vectors
- Velocity and acceleration
- Projectile motion part 1
- Projectile motion part 2
- Force part 1
- Force part 2
- Simple harmonic motion
- Spring motion
- Springs in series
- Springs in parallel
- Simple pendulum
- Momentum part 1
- Momentum part 2
- Collisions
- Hooke's law
- Center of Mass
- Mass on a spring

- Inclined plane
- Friction

Study Hours and Tutoring Assistance

If you need physics tutoring, please contact the library. They have a list of physics tutors.

Student Handbook

Refer to: [Student Handbook](#)

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of work, not the individual to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

[Office of Student Conduct](#)

Moffett Library

Moffett Library provides resources and services to support student's studies and assignments, including books, peer-reviewed journals, databases, and multimedia materials accessible both on campus and remotely. The library offers media equipment checkout, reservable study rooms, and research assistance from librarians to help students effectively find, evaluate, and use information. Get started on this [Moffett Library webpage](#) to explore these resources and learn how to best utilize the library.

Grading

Table 1: Total points for final grade.

Grade	Points
A	90 to 100
B	80 to 89
C	70 to 79
D	60 to 69
F	Less than 60

Extra Credit

Extra credit work may be offered based on the discussions in lab class. It will be uploaded on d2l or emailed to the students.

Late Work

Penalty for late lab work is 10% of the total grade each day.

Make-up Work/Tests

Make-up work will be discussed in lab class and will be emailed.

Important Dates

Last day for term schedule changes: Check the date on the [Academic Calendar](#).

Deadline to file for graduation: Check the date on the [Academic Calendar](#).

Last Day to drop with a grade of "W:" Check the date on the [Academic Calendar](#).

Refer to: [Drops, Withdrawals & Void](#)

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into [D2L](#) through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Attendance

Attendance is a must in labs. You can be excused from a lab only if you are sick or you are busy at an official University event. You will have to provide official documentation for your absence in either case.

Instructor Class Policies

- Questions regarding grades of will be entertained only within a week of receiving the graded assignments and graded exams back from the instructor or teaching assistant.
- The "FINAL CALCULATED GRADE" and the "FINAL ADJUSTED GRADE" will remain the same and there will be no rounding up of the final grades.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees, and room/board charges that were paid to MSU for the semester. However, if the student received financial aid (federal/state/institutional grants, loans, and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exist in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make an application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to [Disability Support Services](#).

College Policies

Campus Carry Rules/Policies

Refer to: [Campus Carry Rules and Policies](#)

Smoking/Tobacco Policy

College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated smoking areas at each location.

Alcohol and Drug Policy

To comply with the Drug-Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibit the unlawful possession, use, or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state, and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Campus Carry

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License-to-carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit [Campus Carry](#).

Active Shooter

The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by the MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit [MSUReady – Active Shooter](#). Students are encouraged to watch

the video entitled "Run. Hide. Fight." which may be electronically accessed via the University police department's webpage: ["Run. Hide. Fight."](#)

Grade Appeal Process

Students who wish to appeal a grade should consult the Midwestern State University [MSU Catalog](#)

***Notice:** Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

Course Schedule:

Week or Module	Activities/Assignments/Exams	Due Date
Week 1	Physics concepts and solved examples based on the chapter/s	N/A
Week 2	Physics concepts and solved examples based on the chapter/s	N/A
Week 3	We will continue doing the physics concepts and solved examples and continue in the following weeks too.	N/A

NOTE: Everything will be posted on d2l and/or emailed to everyone in class.

Assessment for Critical Thinking Skills

The Force Concept Inventory (FCI), developed by I. Halloun, R. R. Hake, E. P. Mosca, and D. Hestenes, is administered to students at the end of the semester. The FCI has been administered nationally since 1995 to assess students understanding of applying Newton's laws in different situations. The exam consists of 30 multiple choice questions. Since the exam must be kept secure, only a few sample questions may be reproduced here. The exam is given at both the beginning and end of the semester to measure students' improvement in understanding over the course of the semester.

Assessment for Communication Skills

Students are assigned to work on a 5 to 10 minute PowerPoint presentation in groups of about 5 students covering the physics behind a roller coaster of their choice.

Presentation Rubric (specific to this assignment):

Points	5	3	1
Content	Appropriate amount of content to fill the allotted time.	Slightly less or more content than what was needed for the allotted time (under or over by less than a two minutes).	Significantly less or more content than what was needed for the allotted time (under or over by more than two minutes).
Creativity	Uses graphics appropriately and often. May make use of props.	Uses graphics appropriately, but doesn't include any extras (no props).	Little or no graphics.
Style	Speaks to audience. No significant breaks in speech. Conducted in a professional manner.	Loses train of thought but recovers well. Conducted in a less serious manner (too many jokes, not formal enough, etc.) or reads straight from paper.	Rarely or never makes eye contact with audience. May treat entire talk as a joke. Not professional at all.
Physics	All physical concepts are described correctly and the appropriate concepts are addressed.	One or two slight problems in descriptions of physical principals or exclusion of one physical concept that should have been addressed.	Major problems with physical descriptions or leaves out large component of the physical principals involved.
Answering Questions	Able to answer all questions posed without difficulty.	Able to answer all questions posed with little difficulty or makes slight mistake in answering questions posed.	Unable to adequately answer questions posed.

Assessment for Empirical & Quantitative Skills

The AACU quantitative literacy rubric is applied (copied below).

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Interpretation Ability to explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words)	Provides accurate explanations of information presented in mathematical forms. Makes appropriate inferences based on that information. For example, accurately explains the trend data shown in a graph and makes reasonable predictions regarding what the data suggest about future events.	Provides accurate explanations of information presented in mathematical forms. For instance, accurately explains the trend data shown in a graph.	Provides somewhat accurate explanations of information presented in mathematical forms, but occasionally makes minor errors related to computations or units. For instance, accurately explains trend data shown in a graph, but may miscalculate the slope of the trend line.	Attempts to explain information presented in mathematical forms, but draws incorrect conclusions about what the information means. For example, attempts to explain the trend data shown in a graph, but will frequently misinterpret the nature of that trend, perhaps by confusing positive and negative trends.
Representation Ability to convert relevant information into various mathematical forms (e.g., equations, graphs, diagrams, tables, words)	Skillfully converts relevant information into an insightful mathematical portrayal in a way that contributes to a further or deeper understanding.	Competently converts relevant information into an appropriate and desired mathematical portrayal.	Completes conversion of information but resulting mathematical portrayal is only partially appropriate or accurate.	Completes conversion of information but resulting mathematical portrayal is inappropriate or inaccurate.

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Calculation	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem. Calculations are also presented elegantly (clearly, concisely, etc.)	Calculations attempted are essentially all successful and sufficiently comprehensive to solve the problem.	Calculations attempted are either unsuccessful or represent only a portion of the calculations required to comprehensively solve the problem.	Calculations are attempted but are both unsuccessful and are not comprehensive.
Application / Analysis Ability to make judgments and draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis	Uses the quantitative analysis of data as the basis for deep and thoughtful judgments, drawing insightful, carefully qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for competent judgments, drawing reasonable and appropriately qualified conclusions from this work.	Uses the quantitative analysis of data as the basis for workmanlike (without inspiration or nuance, ordinary) judgments, drawing plausible conclusions from this work.	Uses the quantitative analysis of data as the basis for tentative, basic judgments, although is hesitant or uncertain about drawing conclusions from this work.
Assumptions Ability to make and evaluate important assumptions in estimation, modeling, and data analysis	Explicitly describes assumptions and provides compelling rationale for why each assumption is appropriate. Shows awareness that confidence in final conclusions is limited by the accuracy of the assumptions.	Explicitly describes assumptions and provides compelling rationale for why assumptions are appropriate.	Explicitly describes assumptions.	Attempts to describe assumptions.

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Communication Expressing quantitative evidence in support of the argument or purpose of the work (in terms of what evidence is used and how it is formatted, presented, and contextualized)	Uses quantitative information in connection with the argument or purpose of the work, presents it in an effective format, and explicates it with consistently high quality.	Uses quantitative information in connection with the argument or purpose of the work, though data may be presented in a less than completely effective format or some parts of the explication may be uneven.	Uses quantitative information, but does not effectively connect it to the argument or purpose of the work.	Presents an argument for which quantitative evidence is pertinent, but does not provide adequate explicit numerical support. (May use quasi-quantitative words such as "many," "few," "increasing," "small," and the like in place of actual quantities.)

Assessment for Teamwork

Students are assigned to work on a 5 to 10 minute PowerPoint presentation in groups of about 5 students covering the physics behind a roller coaster of their choice.

The AACU teamwork rubric is applied (copied below).

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Contributes to Team Meetings	Helps the team move forward by articulating the merits of alternative ideas or proposals.	Offers alternative solutions or courses of action that build on the ideas of others.	Offers new suggestions to advance the work of the group.	Shares ideas but does not advance the work of the group.

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Facilitates the Contributions of Team Members	Engages team members in ways that facilitate their contributions to meetings by both constructively building upon or synthesizing the contributions of others as well as noticing when someone is not participating and inviting them to engage.	Engages team members in ways that facilitate their contributions to meetings by constructively building upon or synthesizing the contributions of others.	Engages team members in ways that facilitate their contributions to meetings by restating the views of other team members and/or asking questions for clarification.	Engages team members by taking turns and listening to others without interrupting.
Individual Contributions Outside of Team Meetings	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project. Proactively helps other team members complete their assigned tasks to a similar level of excellence.	Completes all assigned tasks by deadline; work accomplished is thorough, comprehensive, and advances the project.	Completes all assigned tasks by deadline; work accomplished advances the project.	Completes all assigned tasks by deadline.

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Fosters Constructive Team Climate	<p>Supports a constructive team climate by doing all of the following:</p> <ul style="list-style-type: none"> Treats team members respectfully by being polite and constructive in communication. Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. Provides assistance and/or encouragement to team members. 	<p>Supports a constructive team climate by doing any three of the following:</p> <ul style="list-style-type: none"> Treats team members respectfully by being polite and constructive in communication. Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. Provides assistance and/or encouragement to team members. 	<p>Supports a constructive team climate by doing any two of the following:</p> <ul style="list-style-type: none"> Treats team members respectfully by being polite and constructive in communication. Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. Provides assistance and/or encouragement to team members. 	<p>Supports a constructive team climate by doing any one of the following:</p> <ul style="list-style-type: none"> Treats team members respectfully by being polite and constructive in communication. Uses positive vocal or written tone, facial expressions, and/or body language to convey a positive attitude about the team and its work. Motivates teammates by expressing confidence about the importance of the task and the team's ability to accomplish it. Provides assistance and/or encouragement to team members.

Criteria	Capstone	Milestone 1	Milestone 2	Benchmark
Responds to Conflict	Addresses destructive conflict directly and constructively, helping to manage/resolve it in a way that strengthens overall team cohesiveness and future effectiveness.	Identifies and acknowledges conflict and stays engaged with it.	Redirecting focus toward common ground, toward task at hand (away from conflict).	Passively accepts alternate viewpoints/ideas/opinions.