

COURSE:

Physics

MIDLAND CLASSICAL ACADEMY

COURSE DESCRIPTION

2025-2026



COURSE OBJECTIVES

- Introduce students to various aspects of physics from the high school to the early college level.
- Gain a mastery level of understanding of these subjects.
- Optional problems and special projects will be offered to those students who want to achieve beyond the mastery level.
- Class topics will reinforce both the practical and mathematical aspects of each topic covered.
- Physics is expected to create differing levels of adversity for the students throughout the year. Aside from the primary objective of understanding each subject, a secondary objective of the class will be to help the students face and overcome these adversities to grow in personal confidence and character.
- This class, as well as all classes at MCA, provides an opportunity for tutors to disciple young men and women to follow Christ in every area of life. Because of this, some activities, class discussions and personal tutoring will focus on developing character as well as understanding Physics. In the end, the students may find that achieving the secondary objective is more valuable than achieving the first.
- Additionally, this course will offer innumerable opportunities to better understand Romans 1:20: "For since the creation of the world His invisible attributes, His eternal power and divine nature have been clearly seen, being understood through what has been made."

CLASS PREPARATION

The student will be required to steward his or her own work according to a course syllabus. It is the student's responsibility to refer to the syllabus. At the beginning of each unit, the student will be given all of the due dates (homework, labs and tests). It is the responsibility of the student to adhere to those dates.

Students are expected to complete the above preparation before class. As a Level IV subject, class contribution counts for 30% of a student's grade. As a 4-hour credit, Physics should require roughly 6 hours per week of outside preparation time.

CLASS TIME

Class time will be spent discussing concepts dealt with in the textbooks that students have read prior to class. Class time will also focus on working practical problems to reinforce the concepts addressed in the text. Hands-on labs will also provide practical demonstrations. Physics is a "problem intense" subject, that is, there are many practical applications of the concepts that are best understood by working through example problems. Thus, this class places a premium on discipline to methodically work problems and to understand concepts. Tutors and teaching assistants will make themselves available for individual and small group help on homework problems. Students are encouraged to work together to understand homework problems, but all students are expected to do their own work.

REQUIRED READING

- *The People's Physics Book* by James H. Dann

SUPPLIES

Also consult Grade Level Supply List.

- Most lab reports will be completed using Microsoft Excel and Microsoft Word. It is helpful for a student to have a laptop or desktop computer with Microsoft Excel loaded. Some of the functionality that will be utilized is only available in the full download version. The web-based versions do not contain the full functionality. Every student has full access to Microsoft Word and Microsoft Excel using their school credentials. If the student does not have access to a computer, the computers in the resource center are available and loaded with all needed software.
- Engineering paper is nice, but not required IF the student is neat in their work. There is a lot of graphing in the course, and drawing pictures throughout the course, so engineering paper makes it easy. Please try to get some, but again, IF the student shows their work neatly (including graphs) is it not necessary.
- Graphing calculator (required)—we strongly recommend a TI-84 Plus CE
 - The TI-84 Plus is also adequate for the class. The color features of the CE have been helpful for students
 - We will provide class time instruction on how to use it
 - If your family prefers another brand or model, you are free to choose it, but your student will not receive instructions on its use from his/her tutor

GRADING

Students will be monitored on the following four areas to observe mastery of the subjects: homework, major tests, labs and class contribution. The tutor will evaluate work according to completeness, logic, and correctness, assigning points for homework, tests and class contribution. A minimum point total will be assigned for Mastery of the class. Students desiring a higher grade on returned homework and quizzes may re-submit work to increase the point grade. Unfortunately, contribution points cannot be revised after class. Points will be entered in the MCA record weekly, and students can monitor their progress to Mastery.

Mastery is achieved by obtaining an 85% overall percentage in the class. Mastery (M) is achieved by obtaining an 85% overall percentage in the class. A student is eligible to earn a Mastery with Honors (MH) for the course after obtaining a 92.5% average for both the first and second semesters and by completing an approved Mastery with Honors project of at least 20 hours. Students may initiate their own project idea or build upon suggestions offered by the tutors or classroom assistants. The relative value of the homework, quizzes and class contribution is as follows:

Class Contribution - 30%

Homework - 15%

Labs - 20%

Dialogues – 15%

Tests - 20%

Class Contribution

Contribution Grades primarily assesses four areas: a student's preparation for class, his/her attitude towards learning, his/her contribution towards learning during class-time, and his/her level of engagement during the class conversation.

A student's respectfulness towards God, his tutor, and peers is a prerequisite for a good Contribution Grade.

Daily Contribution grades will be given for every hour of class. Typically, students are expected to earn 10 points per hour, but the tutor may adjust these values to better reflect the nature of the class time. Daily Contribution grades are not revisable.

Additional Contribution Grades such as Quizzes, Engagement Notes, etc. may be assigned as needed. All additional Contribution Grades are revisable for 70% of the original value, unless the tutor specifies otherwise.

Homework

25% of a student's grade will be based on homework. The possible points for each assignment will vary. Deductions will be made for incorrect work, late submittal and/or failure to follow homework directions. Homework is not deemed "late" unless it is turned in after the Friday class period of the week it is due. However, failure to turn in assigned homework at the beginning of class on the day it is due will result in deductions from the class contribution grade. A 10% deduction per class period is automatically taken for late homework turned in after Friday of the week it is assigned. This includes homework assignments due at the beginning of class Friday. Homework will be graded and returned promptly.

REVISIONS FOR HOMEWORK AND TESTS

All homework and most tests (see below) may be revised for a higher grade for **up to three weeks from the original due date**. A student is never required to revise anything but is strongly encouraged to do so! Corrected homework or tests will receive 70% of the points lost and may be turned in within the four-week time period. Additionally, point deductions may be taken for late assignments. Late point losses may not be made up. If a student does not achieve a score of 70% or higher on a test, no revision points are entered into the grade book until the following process occurs:

1. The student must revise the test and arrange for a time to sit down one-on-one with the tutor to go over these revisions to ensure understanding. The second test will be given only after this process has occurred. The student must initiate this one-on-one tutoring session at the tutor's convenience.
2. At the tutor's discretion, if sufficient understanding cannot be demonstrated, the student may be required to revise certain homework problems that are creating difficulty, then review these problems as well as the test revisions with the tutor in a one-on-one session at the tutor's convenience.
3. The student must pass a second (usually more difficult!) version of the test with a score of greater than 70% or the process repeats.
4. On the last retaken test, no revision points will be allowed.

From this process, it should be obvious to the student that it is MUCH easier to understand a problem the first time it is turned in for homework, study all their homework problems prior to taking the first test and pass the test the first time with a score above 70% so that they can freely revise for an even higher score. If this is not done, the student usually falls so far behind the general class that it becomes difficult to pass the course with a grade of 85%. Since physics is a highly sequential subject, MCA believes that this process is what will help students to build on a solid foundation as they progress through their education.

EXTRA CREDIT ASSIGNMENTS AND SPECIAL PROJECTS

Additional points may be earned through the completion of extra credit assignment or special projects. There are some more lengthy assignments that are available for extra credit, but a student is only able to access these assignments once they have completed all revisions from the previous two months of class. These lengthier assignments will require a special request to the tutor and may differ according to student. Assignments may involve additional homework, research or an in-class presentation. Special projects will allow the students to

explore an area of interest more deeply with the purpose of sharing or demonstrating insights to the rest of the class.

OFFICE HOURS

Office hours will be posted on my door early in the year. Parents and students are invited to communicate with the tutor frequently via phone, email, office visit or lunch.

COMMUNICATION

At Midland Classical Academy, we promote an open-door environment between tutors, students, and parents. Students are encouraged to initiate contact with their tutors when they need help on a concept or just a listening ear. My office hours will be posted on my office door, and students are welcome to drop by or schedule an appointment. Parents are also encouraged to contact me in the same manner.

I will do my best to communicate with students and parents if the student's grade is below an 85%.

TURNITIN POLICY

Turnitin is an internet-based service and tool that promotes academic integrity and original thought from students. Turnitin screens for similarity (plagiarism) and detects unauthorized A.I. usage in writing.

To better ensure academic integrity and original thought, tutors may ask students to either submit their classwork through Turnitin directly or to email them a digital copy of their classwork, for the tutor to upload through Turnitin screenings.

Tutors may use the feedback Turnitin provides to help them make a more-informed determination about the integrity and originality of the students' work.

MCA Schoolwide Policies

MCA ATTENDANCE POLICY

Absence: Parents must inform the school if their student will be absent for any reason. Call the Front Office or email upperschoolnurse@mcaknights.org prior to the absence or on the morning of the absence. If a student is absent without prior notification by a parent, the school will call the parent to determine the validity of the absence. Call the office, 432-694-0995, or email upperschoolnurse@mcaknights.org.

In the event an Upper School student is absent for more than one-fourth (1/4) of the class sessions during a semester, the student's parents must meet with the tutor and Head Administrator to determine whether the student will receive credit for the class. Additional and/or make-up work may be required.

Tardy Policy: Tardies will be marked at the discretion of the individual tutors. Students or parents should contact the individual tutors to report reasons for tardies as soon as possible.

Missed Assignment Due Date Guidelines: In the event of an absence, a due date extension will be given. The extension will not exceed the number of school days missed during the absence. Due dates will be established by the class tutor. Students must complete all work assigned during their absence. However, the tutors may, at their

discretion, excuse the students from any portion of the assignments missed. Students will receive full credit for submitting assigned work. Note: It is the **student's responsibility** to find out what work was assigned. In the case of extended illness, it is recommended that the student or parents contact the tutors directly to find out what assignments were or will be missed.

MCA HONESTY POLICY

All students are assumed to be exhibiting the godly fruit of self-control. We anticipate working with students who are characterized by joy, honesty, and diligence. For this reason, upon enrollment, we require that each student affirm that he or she will maintain the highest standards of honesty and behavior in all work done for Midland Classical Academy. All students will be asked to sign the following.

Pledge of Academic Honesty

I have read and understand the Midland Classical Academy Code of Conduct. I pledge my honor, with God as my witness, to commit myself to the practice and preservation of these standards of academic honesty as long as I am a student of the academy.

As such, the following actions are considered serious violations of our Honesty Policy.

1. *Directly copying someone else's work visually, orally, electronically, or otherwise.*
2. *Use of disallowed devices on assignments such as notes, smartphones, books, etc.*
3. *Getting test questions or essential information from another student who has already completed an assignment that will later be taken, such as a test or quiz.*
4. *Any other activity that the tutor has explicitly described as cheating.*

MCA MASTERY WITH HONORS (MH)

Midland Classical Academy offers honors credit, referred to as "Mastery with Honor", but we offer no "honors" classes.

Mastery with Honor credit for a class is given to those students who

- receive a minimum grade of 92.5 at the end of each semester
- receive a minimum participation grade of 85 at the end of each semester
- demonstrate character befitting an honor student (1 Corinthians 10:31)
- complete a tutor-approved, 20+ hour project that advances the student's knowledge or skills in the subject while serving either the school or the community in some capacity.

As a student fulfills these requirements in a class at MCA, they receive a Mastery with Honor designated by an "MH" for the class. Mastery with Honor applications and a nominal fee are due at the end of October. The projects themselves are due at the end of March with two scheduled checkpoints in between the application and final deadline.

ARTIFICIAL INTELLIGENCE (A.I.) POLICY

Artificial Intelligence programs are tools that can be used beneficially or harmfully. To the extent that MCA uses these A.I. tools, we desire to use them and instruct our students to use them beneficially. It requires the classical virtue of "Wisdom" to discern the difference between what is beneficial and what is harmful.

Among MCA's core values is "Engaging Minds". Everything we do, including our use of A.I. needs to be in harmony with this value and to cultivate within students the skill of being able to "think for themselves".

MCA offers the following principles for tutors & students to follow as they navigate A.I. in their academic domains. MCA tutors will create and clearly communicate their own instructions for A.I. usage in their classrooms and for their assignments. Students should practice integrity, honesty, and humility in their use of A.I. as in all their work.

Principle 1: *Why to use A.I.* - A.I. should only be used by a student to equip them to better understand the material and to learn in a way that facilitates their critical thinking skills.

Principle 2: *When to use A.I.* - Tutors will explicitly and clearly communicate which assignments a student may or may not use A.I. tools to assist in their learning.

Principle 3: *How to use A.I.* - Tutors will explicitly and clearly communicate the method in which it is acceptable and not acceptable for the student to use A.I. tools.