



# *Andrews Academy*

## *Physics*

*Course Outline 2021-2022*

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Richard Wright, Instructor  
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Google Classroom Code: 7ujerzm

Two Semester Course

### ***MISSION STATEMENT***

Andrews Academy exists to provide students with Christ-centered Seventh-day Adventist education, as it cultivates in them the desire to nurture a personal relationship with Christ, and achieve God's purpose in their lives spiritually, physically, academically, aesthetically, and socially.

### ***VISION STATEMENT***

Andrews Academy will be a premier Seventh-day Adventist secondary institution where students think deeply, live fully, serve unselfishly, and honor God

## **CORE VALUES**

To restore in man the image of His maker, Andrews Academy is committed to the following:

1. **Spiritual** development through a scriptural compass
2. **Academic** excellence, prompting contagious intellectual curiosity
3. **Relationship** building, strengthening a sense of community
4. Leadership through **service**, as modeled by Christ
5. World **outreach**, developing global awareness & commitment
6. Celebrating **diversity** within a vibrant multicultural community
7. Promoting a culture of holistic **wellness**
8. Creating a **safe haven** both physically and emotionally for all
9. **Elevating music** to honor God
10. Nurturing, innovative, engaging, passionate, and dedicated faculty

## **PHILOSOPHY & OBJECTIVES**

- I. To provide a Seventh-day Adventist Christian education for the children and youth in the immediate vicinity.
- II. To provide its pupils with an educational program that leads to a full commitment of their intellectual, social, physical, and spiritual resources to the service of God and man.
- III. To provide a quality education in an atmosphere conducive to the development of the spiritual life of the student.
- IV. To prepare for society individuals who are maturing Seventh-day Adventist Christians, and who are productive and worthy citizens.

## **NATURE OF MAN**

Fundamental to an Adventist philosophy of education is the concept of fiat creation. In the beginning God created man together with a domain for His existence, which includes time, space, and matter. It also includes cause and effect relationships which operate independently of the will of man. These relationships are central to a philosophy of education because they are the essence of the domain created for man. Belief in the rational nature of God's creation provides man the basis for both learning and teaching. Man is made in the image of God. The making of man was God's crowning creative act, and it is God's plan that man participate with Him in the continuing development of human beings. Among those attributes of God which are most apparent to man and most apparent in man are Freedom, Love, Creativity, and a Sense of Beauty and Righteousness.

## **FREEDOM**

Man was created with a free will. This is of fundamental importance because it gives meaning to life and purpose to the exercise of man's other attributes. Creativity, love, and a sense of beauty and righteousness have meaning because man has a free will. As created by God, freedom for man means man can make choices with some advance knowledge about the nature of the consequences of his choices and that he is responsible for the results. Man's freedom is limited to his domain of existence, and the rational nature of this domain makes it possible for him to reason from cause to effect.

## **LOVE**

Love is a principle upon which should be based relationships between God and man and between man and man. It is through faith that these relationships are accomplished. In giving man dominion over the earth and its creatures, God did not intend that man should have dominion over other men's minds. One who loves his fellow man adapts his freedom to that fact, and, by the blending of love with freedom, respects the individuality of each person.

## **CREATIVITY**

God made man to think and to do. The exercise of man's creative faculties is and will eternally be the primary means of occupying his time and expressing his individuality. Because creativity touches all aspects of life, responsibility should be a part of all creative actions.

## **SENSE OF BEAUTY & RIGHTEOUSNESS**

Freedom, love, and creativity not only come from God, but also, properly used, lead back to God. A sense of beauty and righteousness enables man to recognize significant milestones along this journey. Beauty gives meaning to creativity, for beauty in form, structure, and utility is the aesthetic goal of creativity. A sense of righteousness includes a sense of values. An

aspect of the continuing development of human beings involves establishing within the individual a value system based on the word of God. This system provides a sense of what is worth doing and the ability to recognize when it is done well.

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### ***RESTORATION OF MAN***

Man has lost much of his freedom because he is subjected not only to the consequences of his own unwise choices, but also to the consequences of others' actions, especially to those of his predecessors. Man's creativity is diminished since most of his actions and thoughts center on sustaining life rather than giving creative expression to the joy of living. Man's sense of beauty and rightness is tarnished by the presence of the ugly and wrong. Sin and death make it apparent that man has chosen to live outside his original domain of existence, out of harmony with the Creator's intent for him. The act of the will of man, which resulted in giving up much of the image of God, was followed by an act of atonement and restoration by Jesus Christ. By this atonement God made it possible for man, again by an act of the will, to accept the restoration of this image.

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### ***SOURCE OF KNOWLEDGE & WISDOM***

God is the source of true knowledge. He created man with an insatiable desire to search, discover and describe. Man fulfills this compulsion by utilizing these aspects of his creativity in perceiving God and in responding to what God has wrought. But this activity of man is accomplished through faith and influenced by an aspect of God's love for man, namely His communication with man by the means of inspired writings, the Holy Spirit, nature, caring human relationships, and experiences of life. Since God is the source of all truth, only that truth which leads beyond knowledge to wisdom harmonizes with God's intent for man, His creation for man, and the restoration of His image in man.

## Course Description

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**Credit:** 0.5, 0.5

**Prerequisite:** Algebra I and Geometry with a minimum grade of B. Algebra II is strongly recommended.

Physics is a natural science concerned primarily with the principles and laws governing the behavior of the inanimate world. It is a way of looking at the world around us by attempting to describe it through measurement and mathematical analysis. It is concerned with questions and problems that relate to matter and energy interactions. The purpose of physics is to discover concepts and laws which can help us understand the universe. The topics studied include mechanics, heat, light, sound, magnetism, electricity, electronics, atomic structure, and nuclear reactions. See the Andrews Academy Source Handbook for additional details.

### Course Objectives:

1. To develop the student's knowledge and skill in working with kinematics, forces, uniform circular motion, work and energy, momentum, fluids, heat and thermodynamics, waves and sound, electric forces and fields, electric circuits, magnetism, electromagnetic waves and optics, special relativity as well as help them make meaningful connections to real life's experiences.
2. To establish student's math foundation for advanced math courses and math related courses such as sciences.
3. To develop student's note taking ability and develop effective and consistent study skills which is critical for a cumulative subject like math.
4. To develop the student's appreciation for our Creator and to discover the mathematical relationships we see in His Creation.

## Textbook

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Title: College Physics  
Copyright: 2013  
Authors: OpenStax College  
Publisher: OpenStax College  
ISBN: 1938168003

## Materials

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- Textbook (either hard copy or ebook)
- **1-Inch Binder** in which to keep notes
- 8 ½ by 11-inch **loose** leaf paper for assignments
- **Scientific calculator**
  - I suggest the **TI-30XS MultiView** scientific calculator or you can use graphing calculator but we will not be using any special graphing calculator functions.
  - Please no TI-89 or anything labeled CAS!
  - Cell phones, tablets, computers, and electronic translators are not acceptable calculators! They will not be allowed on any tests.

## Practice Work/Labs

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- Because the vast majority of concepts taught in math and science depend on understanding the preceding concepts, it is imperative that each student faithfully complete each assigned task in the time allotted.
- Most practice work will be due at the beginning of the next class period following the one in which the work was assigned. The first few minutes of the first class period following the assignment will be used to answer a couple of questions on the assignment. Note that probably not all the questions will be answered in these few minutes, so you may have to get help at other times.
- Late work is defined as any paper which is turned in after the time it was due. The only exception is illness. The deadline for late work is the last regular school day before finals by 4:30 PM.
- Unexcused late work will have a 10% deduction from the score. In order to not be counted as late, Mr. Wright's initials must be on the paper.
- Show your work in a form similar to that suggested by your instructor and use reasonably neat handwriting. Points will not be given for problems that cannot be read. Assignments that are returned for no work will be considered late.
- As a reward/incentive for being prompt in completing all tasks, a 2% bonus will be added to the grade of those students who complete all their tasks on time.

- If you turn in all your work on time, you should pass the class (assuming of course that you do your best on all the tests also).
- If you miss class for any reason, it is your responsibility to find out what was missed and to turn in the make-up work promptly. If you know you will miss one or more class periods, plan on turning in your work in advance of your absence.
- Missed labs will not be made up. Labs missed for excused absence will be excused. Labs missed for unexcused absence will receive a 0.
- Please include only one assignment on a single paper.
- **Staple** multiple page assignments together.

### Notes

- The purpose of notes is to have a written account of how to solve the problems. The notes should be a quick way to review the material and reference for solving problems.
- The notes are for the students' reference and should be written so that they can refer back to them to help solve problems.
- Students are required to take notes in their notebooks. Students should have a binder to keep the notes in. Loose notes are not acceptable.
- Each day's notes should include the principles and examples. The examples should include both the problem and the solution.

### Tests and Quizzes

- Tests and quizzes missed during unexcused tardiness or absence may not be made up and a grade of zero will be recorded.
- You should plan to take test and quizzes at their scheduled time and finish in the time allotted. The only exceptions are an excused absence the day of the test or excused absences for at least the three days prior to the scheduled test day.
- All tests, once begun, must be finished prior to leaving. That is, a test (or quiz) must be finished in one sitting. You may not leave and then later return to finish a test.
- You should show your work on all tests and quizzes as it gives you the possibility of earning partial credit.
- No outside help will be permitted on any of the quizzes or tests. Anyone found cheating will be subject to severe discipline as outlined in the Andrews Academy Handbook and will lose all points for that test or quiz. Never appear to be looking on someone else's paper during a test. Never talk to someone during a quiz or a test. Any such action will be interpreted as cheating even if you were not and all of the above results will follow.
- ~~Each student may retake one test on which you receive below 80% each semester. See Mr. Wright to make arrangements.~~ The lowest test will be dropped for each semester.

### Guidelines for Classroom Conduct

- All students are expected to be in their assigned seat and quiet when class begins. Attendance is taken when the bell rings. **If you are not in your seat, you may be marked absent or tardy.**
- If you are more than **10 minutes late, you will be assigned an absence.**
- If you are **absent more than 25% of the total class** periods for the semester (**19 1<sup>st</sup> semester, 23 2<sup>nd</sup> semester**), **you will be forced to withdraw** from class.
- Please bring everything you will need for class with you. You may not be allowed to return to your locker once class begins. If you must leave the room after the bell has sounded, you may be marked tardy.
- Please refrain from talking to your classmates while Mr. Wright is instructing the class.
- Do participate in class discussions.
- Because of the number of students in this class, a rather formal atmosphere must be maintained. Therefore, the usual courtesies of hand-raising and taking your turn are expected and appreciated.
- When you are given your assignment, begin working promptly and work quietly until time is up.

- Eating (food, candy, etc.) and gum chewing are not permitted in the classroom. You can help keep our room a pleasant place to be by erasing any marks on your desk and by placing all waste paper in the basket by the door when class is dismissed. Your thoughtfulness is appreciated.

### **Evaluation**

- School policy requires that letter grades be assigned according to the scale shown at right. Students are strongly encouraged to keep a record of scores, check often on their progress, and report any errors to Mr. Wright in a timely fashion.
- In this class, grades are weighted as follows: Practice Work, and Labs 32%, Notes 8%, Tests and Quizzes 55%, and Final Exam 5%.
- Points for the Practice Work are as follows:
- **Each assignment = 1 point** per problem based on number of problems completed correctly and **work shown** to back up the answers.
- **Notes = 5 points** for each section we cover in class.
- **Labs = usually 10 points** based on completeness and shown work.
- Points for Tests and Quizzes are as follows:
- **Tests = 100 points** per chapter.
- **Quizzes = usually 5 points** per quiz.
- Grades will be posted on Renweb.com. You will get a password from the office to access your grades. I will update the grades at least weekly. You are responsible to check and make sure your grades are correct. Mr. Wright is human and may incorrectly enter some scores.

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| <b>A</b>  | = | <b>93%</b>     |
| <b>A-</b> | = | <b>90%</b>     |
| <b>B+</b> | = | <b>87%</b>     |
| <b>B</b>  | = | <b>83%</b>     |
| <b>B-</b> | = | <b>80%</b>     |
| <b>C+</b> | = | <b>77%</b>     |
| <b>C</b>  | = | <b>73%</b>     |
| <b>C-</b> | = | <b>70%</b>     |
| <b>D+</b> | = | <b>67%</b>     |
| <b>D</b>  | = | <b>63%</b>     |
| <b>D-</b> | = | <b>60%</b>     |
| <b>F</b>  | = | <b>&lt;60%</b> |

### **Getting Extra Help**

- Although there is often ample time during class to have questions answered and concepts clarified, students may occasionally need extra assistance outside of class. Please do not hesitate to contact Mr. Wright when questions arise. You may reach him at his office (471-6177) or on his cell (252-9482) preferably before 9:00 PM.
- If you need to meet with Mr. Wright after school hours, please make an effort to make an appointment in advance. Doing so will minimize frustration for all.
- If you just need some extra help, Mr. Wright is usually in his classroom after school from 3:15 to 4:30.

### **Important Notice**

Please remember that Mr. Wright reserves the right to make any changes to this course outline at any time he deems necessary to better meet the needs of the class.