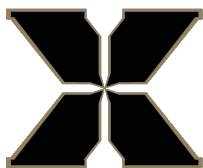


A.M.D.G.



AP Physics 1

Dr. Gregory Hepner

ghepner@xavierprep.org

Welcome to AP Physics I !

Congratulations on signing up for one of the most scientifically and mathematically intensive and challenging courses at Xavier! The Counseling Department informed me you want to enroll in AP Physics 1. In this course you will use all of your algebraic, geometric, and trigonometric skills and powers to understand physical concepts about linear, circular, and rotational motion and forces; periodic and wave motion; acoustics; electrostatics; and electric current. You will also be solving complex multi-step written problems, including trigonometric analysis and systems of equations about these concepts.

Prerequisites: Completion of Honors Chemistry with minimum grade of B+; Algebra II with minimum grade of A or Honors Algebra II/Trigonometry with minimum grade of B+; and Science Department recommendation.

We will spend about 25% of our time doing laboratory experiments and 75% of our time learning concepts, deriving formulas, and solving problems. The textbook and laboratory manual are at the university level. AP Physics 1 is taught as a university course for university credit, therefore it is rigorous and demanding. Mature classroom demeanor and behavior is expected from the first day of class.

The information in this document was emailed to your Counselor and is also posted on Ren Web and the Xavier website.

N.B. Although you requested AP Physics I, it may not be on your schedule if it conflicts with other courses you requested. After the master schedule is finalized, your counselor will contact you if a conflict occurs and help you decide on your schedule.

In preparation for our first week together in the classroom, there is summer work, which ***must*** be completed. This consists of reading two books, writing a reflective essay of 1500 words (APA format) on World History Biographies: Isaac Newton: The Scientist Who Changed Everything, and taking an exam on The History of Physics. It is your responsibility to obtain the books through the internet or at a local bookstore, complete the essay, and prepare to take the exam. I obtained both books from Amazon.com.

The books are:

World History Biographies: Isaac Newton: The Scientist Who Changed Everything
by Philip Steele · National Geographic Society · Paperback · 64 pages · ISBN 1426314507

and

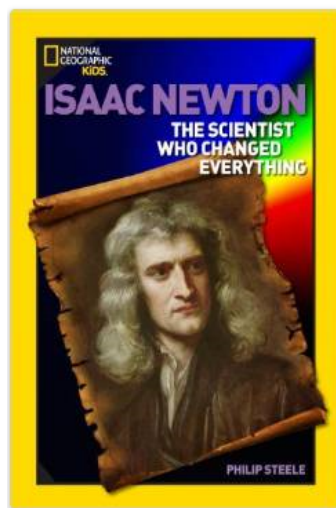
The History of Physics
by H. Thomas Milhorn · Virtualbookworm.com Publishing, Incorporated · Paperback · 352 pages
· ISBN 1602642028.

The 1500 word (approximately 6 pages) essay, using the book on Isaac Newton, will focus on his contributions to various fields of knowledge, with particular attention to his work in classical mechanics, optics, and calculus. You must discuss *how* and *why* his work was important for developments in physics, mathematics, and technology. *How* did his work influence subsequent scientific discoveries, the Industrial Revolution, and the development of its technologies? *Why* and *how* is his work still relevant today? If you used additional sources, then properly cite them. It must be typed in 12pt. Times New Roman font and double-spaced. ***The essay must be received as a paper copy on Monday, 19 Aug 2019 and earn a total of 75 points or higher for continued enrollment in AP Physics 1.***

Essay Grading Rubric

APA format	10 points
Grammar, spelling, and punctuation	20 points
1-3 errors (20 points)	
4-6 errors (10 points)	
7 + errors (0 points)	
Facts about Newton (who, what, when, where)	30 points
Implications of Newton's work (how, why, etc...)	40 points
	100 points TOTAL

The exam covers the following sections of The History of Physics: Preface; Introduction (p. 1-6); Early Physics (p. 8-36); and 18th Century Physics (p. 38-86). **HINT**-Focus on the following individuals and their contribution(s) to physics: Thales, Democritus, Aristotle, Archimedes, Roger Bacon, William Gilbert, Francis Bacon, Willebrord Snell, Galileo Galilei, Rene Descartes, Blaise Pascal, Robert Hooke, Isaac Newton, Stephen Grey, Charles du Fay, Benjamin Franklin, Mikhail Lomonosov, Roger Boscovich, John Michell, Henry Cavendish, Charles Coulomb, Luigi Galvani, Alessandro Volta, Ernst Chladni, Andre Ampere, Friedrich Gauss, Hans Orsted, Georg Ohm, Michael Faraday, Sadi Carnot. These individuals contributed to the topics we will be studying in the course. ***The exam, administered on Monday, 19 Aug 2019, must be completed with a grade of 75% or higher for continued enrollment in AP Physics 1.***



World History Biographies: Isaac Newton: The Scientist Who Changed Everything (National Geographic World History Biographies) Paperback – July 9, 2013

by Philip Steele (Author)

★★★★★ 5 customer reviews

See all 6 formats and editions

Hardcover
\$16.16

Paperback
\$7.58

14 Used from \$1.75
10 New from \$16.16

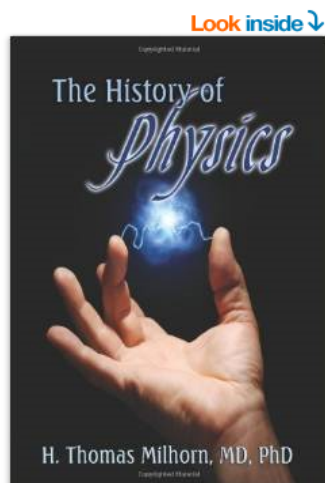
38 Used from \$1.49
41 New from \$3.65

Born in England in 1643, Isaac Newton grew up in the age when Renaissance thinkers were challenging accepted ideas throughout Europe. Fascinated by all earthly science, Newton developed laws of motion and universal gravitation which also furthered our understanding of the movement of celestial bodies. This vibrant biography profiles the famed physicist as an acclaimed mathematician, astronomer, alchemist, philosopher, and inventor as well. Readers will discover the genius who inspired Alexander Pope to write,

Read more



See all 2 images



[See this image](#)

The History of Physics Paperback — June 4, 2008

by H. Thomas Milhorn (Author), Howard T. Milhorn (Author)

★★★★☆ ▾ 2 customer reviews

ISBN-13: 978-1602642027 | ISBN-10: 1602642028

Buy New

Price: **\$15.15**

20 New from **\$15.15** | 13 Used from **\$11.09**

	Amazon Price	New from	Used from
Paperback, June 4, 2008	\$15.15	\$15.15	\$11.09

FREE TWO-DAY SHIPPING FOR COLLEGE STUDENTS

[Learn more](#)

amazonstudent

The history of physics ranges from antiquity to modern string theory. Since early times, human beings have sought to understand the workings of nature—why unsupported objects drop to the ground, why different materials have different properties, and so forth. The emergence of physics as a science, distinct from natural philosophy, began with the scientific revolution of the 16th and 17th centuries when the scientific method came into vogue. Speculation was no longer

▾ [Read more](#)

Mathematics Pre-Skills Exam

A Mathematics Pre-Skills Exam will be administered on Thursday, 15 August or Friday, 16 August. All the knowledge and skills tested are part of the Algebra I, Geometry, and Algebra II curriculum at Xavier College Prep. You may use a calculator. I do **NOT** have calculators for distribution. **BRING YOUR OWN CALCULATOR!** Your calculator must have trig function keys of sine, cosine, and tangent. You may **NOT** use your phone as a calculator.

Content of Mathematics Pre-Skills Exam:

- | | |
|--|---------------|
| 1. Solve a linear equation in one variable | (1 question) |
| 2. Graph a linear equation in two variables | (1 question) |
| 3. Find the slope of a line | (1 question) |
| 4. Write an equation for a line | (1 question) |
| 5. Find a solution for a system of three linear equations in three variables | (1 question) |
| 6. Find a solution of a quadratic equation | (1 question) |
| 7. Convert degrees to radians | (1 question) |
| 8. Convert radians to degrees | (1 question) |
| 9. Find the unknown angles of parallel lines cut by a transversal | (4 questions) |
| 10. Find the unknown side of a right triangle | (1 question) |
| 11. Find the sine, cosine, and tangent of unknown angles of a right triangle | (4 questions) |
| 12. Find unknown angles of a right triangle in degrees | (1 question) |
| 13. Rearrange a formula by solving for a given variable | (2 questions) |
| 14. Use the four operations (add, subtract, multiply, & divide) in scientific notation | (3 questions) |
| 15. Find the circumference and area of a circle | (2 questions) |

TOTAL (25 questions)

N.B. If you score poorly on the mathematics pre-skills exam, it may indicate you will struggle with the underlying mathematics in AP Physics 1.

Please email me with any questions you have regarding this course and/or summer work requirements.

Dr. Gregory Hepner,
AP Physics 1 Instructor
Commander, U.S. Navy (retired)
760.601-3900, ext. 6157