

GENERAL COURSE INFORMATION

(from the Collin College Generic Course Syllabus)

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Course Number: PHYS-1415

Course Title: Physical Science I

Course Description:

Investigation of everyday phenomena of the physical world, which helps students to achieve a well-grounded understanding of selected science concepts as well as the skills that enable and encourage rational independent thinking. Lab required.

Course Credit Hours: 4

Lecture Hours: 3

Lab Hours: 3

Prerequisite: Meet TSI standard for MATH 0310, and TSI college-readiness standard for Reading; or equivalent.

Student Learning Outcomes: Upon successful completion of this course, students should be able to do the following:

1. Solve problems involving basic units of measurement and their relationships
2. Explain the theories of force, motion, work and energy (Critical Thinking and Communication Skills)
3. Explain the theory of temperature and heat
4. Solve problems involving mechanical and optical waves
5. Explain the theory of electricity and magnetism
6. Explain concepts in atomic and nuclear physics
7. Solve problems involving chemical elements and bonding

Withdrawal Policy: See the current Collin Registration Guide for last day to withdraw.

Collin College Academic Policies: See the current Collin Student Handbook.

Americans with Disabilities Act Statement: Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ACCESS office, SCC-D140 or 972.881.5898 (V/TTD: 972.881.5950) to arrange for appropriate accommodations. See the current Collin Student Handbook for additional information.

INSTRUCTOR PROVIDED COURSE INFORMATION

Instructor: Meade Brooks

Office Location: 213 Lawler Hall, Preston Ridge Campus

Office Hours: On-campus: Mon 12:00 - 1:00 pm, Wed 11:00 am - 12:00 pm

Online via Canvas: Tue/Thu 10:00 am - 12:00 pm

Office Phone Number: 972-377-1640 (do not leave voicemail, email me instead)

Email: Send ALL email to me through the course Canvas mail system, NOT my collin.edu email.

COURSE INFORMATION

Last Day to Withdraw from Course: TBA

Meeting Times/Location: This is an online course with no on-campus meetings.

Technology Requirements: This course uses a variety of online technologies. For detailed information on the minimum technology requirements for this course and other related information, visit the eCollin Learning Center at: <http://www.collin.edu/academics/ecollin/index.html> (<http://www.collin.edu/academics/ecollin/index.html>)

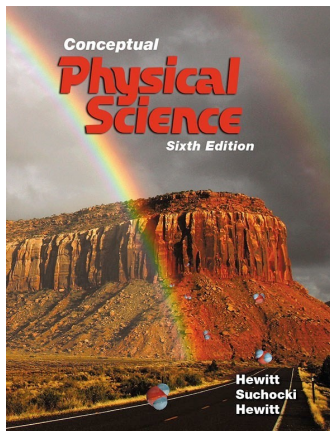
Minimum Student Skills: Students should have the attributes, skills and knowledge necessary for success in this online course including: self-motivation, good time-management skills, self-discipline, good reading comprehension, persistence, available time, ability to use a laptop, printer, software, and the Internet. Find out if you are ready to take an online course by completing the readiness assessment **SmarterMeasure** (https://www.collin.edu/academics/ecollin/eLC_smartermeasure.html) This is an important tool that helps determine your skills for taking an online course. From the SmarterMeasure assessment, you will discover information about your:

- Reading Speed and Comprehension
- Technical Competency and Knowledge
- Typing Speed and Accuracy
- Personal Attributes that relate to distance learning success

Netiquette Expectations: Sensitive discussion topics will be brought up in this class, so please think carefully before responding. Keep these guidelines in mind:

- Standards of courtesy and respect must be maintained at all times in our online “classroom.” Join in to the discussion, but remember that this is still a “classroom” setting and that respect and consideration are crucial for any intellectual discussion.
- Discussion areas are the place for intelligent and respectful airing of ideas. Name-calling and personal attacks are not permitted.
- Any violation of the standards of appropriate behavior online will be reported to the Dean of Students and appropriate disciplinary action will be taken by the college.
- A good rule of thumb is that you should never post a response online that you would not be willing to say in person. Once the course begins, please use your Canvas communication tools to contact Professor Brooks.

COURSE RESOURCES



Textbook: Conceptual Physical Science, 6th Edition

Authors: Paul G. Hewitt , John A. Suchocki, Leslie A. Hewitt

ISBN: 9780134091976

This online lecture makes use of several digital resources, and while available, a printed copy of the course textbook is not necessary. Pearson, the publisher, has made available a low-price digital textbook (eText) for this class packaged with MasteringPhysics, the online assignment system we will use for homework and exams. Follow the directions on the [MasteringPhysics and Textbook Access \(https://collin.instructure.com/courses/831493/pages/masteringphysics-and-textbook-access\)](https://collin.instructure.com/courses/831493/pages/masteringphysics-and-textbook-access) page to purchase these required course resources.

Wherever you purchase your textbook (whether printed or digital), be sure your purchase includes MasteringPhysics! You will be unable to complete your chapter assignments or exams without access to MasteringPhysics.

Supplies: You should have a scientific calculator and computer with internet access. A scientific calculator can perform functions such as scientific notation and order of operation and can be purchased for around \$10. You will be performing several at-home lab activities which use common household items. You may find it necessary to purchase or borrow a few low cost items that you do not have.

COURSE COMPONENTS

Homework Problems: Will be completed in the MasteringPhysics online assignment system. There will also be questions assigned to chapter videos available in MasteringPhysics. These video lectures have been created by the author and cover all the chapter concepts.

Exams: Three major tests will be given. These will be completed in the MasteringPhysics online assignment system. There is no traditional final exam for this course.

Simulation Labs: Consists of interacting with online simulations and completing the corresponding worksheets.

At-Home Activities: To provide hands-on experience, students will utilize common household materials to explore physical phenomena. Students must choose at least **six** of the available at-home activities and complete the corresponding worksheets.

Discussions: Questions have been developed for a variety of course topics. These discussions questions will cover a variety of interesting topics and current events – all students are expected to

participate. Students must reply to each discussion question which are graded upon level of participation and thoughtfulness. Additionally, students must reply to at least 2 student postings on the topic.

Video Assignments: Involves watching several online physics and chemistry videos throughout the semester and completing a video worksheet for each.

Team Energy Project: Students will work in groups of 5-6 students to research and analyze the potential of a variety of energy sources to solve our future energy needs.

Method of Evaluation: Course averages will be calculated as follows:

MasteringPhysics HW	30%
Exams (3)	20%
Simulation Labs	15%
At-Home Labs	15%
Graded Discussions	10%
Video Assignments	5%
Team Energy Project	5%
TOTAL	100%

Grades will be determined as follows:

90-100 = **A** 80-89 = **B** 70-79 = **C** 60-69 = **D** 0-59 = **F**

All class grades will be available through Canvas.

COURSE SCHEDULE

Week 1	Students access their course materials Chapter 1 - Patterns of Motion and Equilibrium
Week 2	Chapter 2 - Newton's Laws of Motion Chapter 3 - Momentum and Energy
Week 3	Chapter 4 - Gravity, Projectiles, and Satellites
Week 4	Chapter 5 - Fluid Mechanics
Week 5	Exam 1 , Chapters 1 – 5 Chapter 6 - Thermal Energy and Thermodynamics
Week 6	Chapter 7 - Heat Transfer and Change of Phase
Week 7	Chapter 8 - Static and Current Electricity
Week 8	Chapter 9 - Magnetism and Electromagnetic Induction
Week 9	Chapter 10 - Waves and Sound

Week 10	Chapter 11 - Light Exam 2 , Chapters 6 – 11
Week 11	Chapter 12 - Atoms and the Periodic Table Chapter 13 - The Atomic Nucleus and Radioactivity
Week 12	Chapter 14 - Elements and Chemistry Chapter 15 - How Atoms Bond and Molecules Attract
Week 13	Chapter 16 - Mixtures
Week 14	Chapter 17 - How Chemicals React (sections 17.1 – 17.4 only) Chapter 18 - Two Classes of Chemical Reactions (section 18.1 only)
Week 15	Chapter 19 - Organic Compounds (sections 19.1, 19.2 only)
Week 16	Exam 3 , Chapters 13 – 19