

PSCI 1030: Survey of Physical Science

Instructor Information:

Name
Office phone
Office location
Office hours
E-mail address

I. Course Description

This course is a conceptual introduction to physical science using a minimum of mathematics. Topics discussed include Newtonian mechanics, gravitation, waves, sound, electricity, magnetism, heat and optics, and an introduction to modern physics.

Credit Hours: 4 Credits 3 Class Hours, 3 Lab Hours

Prerequisites: DSPR 0800 and DSPM 0800

II. Course Outcomes

Upon successful completion of this course, the student will be able to:

1. Explain the nature of a scientific theory and discuss the basic mathematical tools used in physical science.
2. Illustrate the physical quantities necessary to describe one dimensional motion and discuss the equations relating them.
3. Explain Newton's Laws of Motion and illustrate their application.
4. Discuss the concepts of energy and momentum and illustrate their uses.
5. Examine the structure and states of matter.
6. Explain the concepts of temperature and heat and discuss the laws of thermodynamics.
7. Discuss the concepts of basic and applied electricity and magnetism.
8. Interpret the ideas of wave motion, sound, and electromagnetic waves.
9. Explain the basic concepts of optics.

Course Topics

- Science and the scientific method
- Inertia and Newton's First Law of Motion
- Linear Motion
- Newton's Second Law of Motion
- Newton's third Law of Motion
- Momentum and Energy
- Rotational Motion
- Gravity
- The Atomic Nature of Matter
- Solids, Liquids, Gases, and Plasmas
- Temperature, Heat, and Expansion
- Heat Transfer
- Change of Phase

- Vibrations, Waves, and Sound
- Electrostatics and Electric Current
- Magnetism and Electromagnetic Induction
- Properties of Light and Color
- Reflection and Refraction
- Light Waves, Light Emission, and Quanta
- The Atom and the Quantum
- Radioactivity
- Fission and Fusion
- The Special and General Relativity

Laboratory Topics

- Accelerated Motion
- Using a Simple Pendulum to Measure g
- The Effect of Air Resistance on Falling Bodies
- Balanced Torques
- Scaling
- Measuring the Buoyant Force on a Submerged Object
- Hooke's Law
- Boyle's Law
- Standing waves and the Speed of Sound in Air

III. Required Materials for Summer 2010 Check with your instructor first.

- Package: Conceptual Physics Package by Paul Hewitt, 11th Edition, Addison-Wesley, ISBN 978-0-321-770430-6

OR if purchasing materials separately

- Conceptual Physics, 11/E, by Paul G. Hewitt, Addison-Wesley, Reading, Mass., ISBN 0-321-56809-5

AND

- The Practice Book for Conceptual Physics 11/E, Paul Hewitt. Addison-Wesley, Reading, Mass., ISBN 0-321-66256-3

Required Lab Manual:

- Conceptual Physics Laboratory Manual (Tenth Edition), Robinson & Hewitt. Addison-Wesley, Reading, Mass., ISBN 0-8053-9199-1

You must buy a new manual, not a used one.

Required Materials for Fall 2010 Check with your instructor first.

- Package: Conceptual Physics Package by Paul Hewitt, 11th Edition, Addison-Wesley, ISBN 978-0-321-70430-6

OR if purchasing materials separately

- Conceptual Physics, 11/E, by Paul G. Hewitt, Addison-Wesley, Reading, Mass., ISBN 0-321-56809-5

AND

- The Practice Book for Conceptual Physics 11/E, Paul Hewitt. Addison-Wesley, Reading, Mass., ISBN 0-321-66256-3

Required Lab Manual:

- Conceptual Physics Laboratory Manual (Eleventh Edition), Robinson & Hewitt. Addison-Wesley, Reading, Mass., ISBN 978-0-321-66260-6

You must buy a new manual, not a used one.

- IV. **Course Policies:** ***Instructors may alter the following policies at their discretion.

Attendance:

Each instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of "FA or "FN" (see explanation below) depending on the individual instructor's course policy.

FA = failure, attendance related (unofficial withdrawal). Last recorded date of attendance required.

FN = failure, never attended class (unofficial withdrawal).

Please be advised that instructors also may have a more specific class policy.

Method of Assessment / Evaluation: **Subject to change at instructor's discretion

Exams:

Tests will be closed book, multiple choice. The multiple choice questions will be taken from the homework exercises and problems. The final examination will be taken from the other tests. Tests may be made up provided there is a valid reason that can be documented. Any makeup must be prior to the next test/final. On the day of the 4th test of the semester, a multiple choice test over the 9 outcomes listed in Section I above will be given. This test will not affect your grade for this course, except that you will receive bonus points which will add one percentage point to your final semester grade.

Evaluation:

There will be three areas of evaluation: tests, homework, and laboratory. The homework will be collected throughout the semester with the due dates announced in class (usually the class period following the date on the schedule). Homework and lab will each be worth 10% of your grade for the semester. There will be a 12% penalty for late homework.

There will be four in-class exams, which will be announced at least one week in advance. The attached schedule gives the approximate date of each exam.

Each exam is worth 20% of your grade. The final exam is optional. If the final is taken, the lowest of the five exam grades will be dropped, and the remaining four tests each count 20% of your grade. If the final is not taken, each of the other four tests counts as 20% of your grade.

Grading Scale

A - 90 - 100

B - 80 - 89.5

C - 70 - 79.5

D - 60 - 69.5

F - 0 - 59.5

Points Available

Best 4 exams	20%
Homework	10%
Laboratory	10%
Total	100%

Safety

The instructor will go over new regulations regarding safety in lab classes. You must turn in a signed copy of the regulations, and you will have a copy to keep.

V. ADA Statement

Nashville State Technical Community College complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Disability Coordinator at 353-3721 in the Student Services building. Such services must have proof of documentation that is not over three years old.

VI. Classroom Behavior

Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions.

The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct in which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).

Please be aware that children are not allowed in class or unattended on campus.

Academic Dishonesty (Honor Code)

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. "Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words" (A Writer's Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else's work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor's permission, allowing someone else to copy or use your work, using someone else's work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member's signature.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an "F" or a "Zero" for the exercise, paper, or examination or to assign an "F" for the course.

NOTE: This syllabus is meant simply as a guide and overview of the course, the topics, the objectives, the general assessments, and some standard college policies. Some items are subject to change or revision at the instructor's discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.