

CHE/PHY 102: Fundamentals of Physical Sciences

Semester: Summer 2019

Semester Hour Credits: 3 credits; 6 weeks.

Instructor: Dr. Ganga S. Fernando, Ext. 2180, gfernando@cottey.edu

Dates: June 3 – July 13. Register by May 21

Class Communication: I will regularly communicate with you through e-mail. I will send class assignments and update you on course info such as test reminders, cancellations or changes to class/lab schedules, etc. via e-mail. I urge you to check your e-mail regularly once we start using e-Learning. "I did not receive the e-mail" does not constitute a legitimate excuse for not keeping up with the course/course changes.

Text book: *Physical Science* (10th Edition). Author: Tillery, Bill. Publisher: McGraw-Hill Education, ISBN: 978-0073513898.

Calculator: A scientific calculator (\$10-\$20) is required for this course. A graphing calculator is not required for this course. A good calculator for this course is the Texas Instruments TI 30XA.

Course description:

This course offers an overview of the physical sciences including the mathematical components needed for understanding the fundamentals of the universe. Topics include the scientific method, measurements, momentum, matter and energy, electricity and magnetism, waves, sound and light, the atom, chemical bonds, stoichiometry, solution chemistry, chemical and nuclear reactions. This course offers students an opportunity to increase or review their knowledge of the physical sciences that is needed to be successful in their major's-level college science classes. The course will also include some out-of-class experimental activities. Topics of mathematics covered will be at the level of Intermediate Algebra. Students will learn algebraic expressions, linear and quadratic equations/inequalities, and basic functions and their graphs.

Learning outcomes:

As a result of our instruction, we expect students successfully completing chemistry 102 to fulfill the following learning outcomes.

Learning Outcome V: Knowledge of the nature of scientific inquiry and the role of science in the modern world

Students fulfill the above Cottey College learning outcome by reaching the following course specific learning outcomes.

- Students gain factual knowledge and basic tools for understanding physical sciences.
- Students develop an appreciation for the fundamental concepts of physical sciences and the role of science in the modern world.
- Students learn mathematical reasoning skills and learn how to understand numerical data.
- Students develop skills in writing explanations/reasons based on relevant and valid evidence.

eLearning: Materials relevant to the class will be posted to eLearning. These include: basic information, lecture notes, handouts, study guides, and grades. You should check out eLearning for updates and announcements on a regular basis.

Tests: There will be three tests given at the end of the second, fourth, fifth weeks. The test will be posted on e-Learning on every other Thursday and is due by Friday midnight. Each test is worth a maximum of 100 points. Final exam is on the Friday of the sixth week and is comprehensive. Final exam is worth 300 points.

Homework: Homework problems will be assigned on e-Learning. Homework will be posted each Monday and is due Tuesday midnight. All the assignments combined are worth a maximum 300 points. No late submissions will be accepted

Expectations: Students are expected to (1) read and study text material as outlined on the lecture schedule,(2) solve assigned questions and problems from each chapter on the time-line specified on the lecture schedule, (3) participate in the discussion of text material in discussion forums and (4) respond to emails in a timely manner.

Grading System: Determination of the final grade for the course is based on the number of points earned on tests, quizzes, writing assignment, class presentation and final exam. Students are expected to take all quizzes and tests on the scheduled dates.

Three Exams (100 points each)	300
Homework	300
Final Exam	300
Total	900

Grade	
A	90-100%
B	80-89
C	70-79%
D	60-69%
F	Below 60%

Plagiarism and other forms of academic dishonesty are not acceptable and not tolerated. Honor Code policies stated in the current Cottey College catalog are followed and implemented when appropriate.

Disclaimer: Instructor reserves the right to change the topic covered or order in which they are covered at his/her discretion after notifying the class in advance.

Projected lectures and exam schedule

Week 1 (June 4 - June 8)	scientific method, Significant figures in calculations, intermediate algebra for physical sciences and Measurements
Week 2 (June 11 - June 15)	Motion, Newton's Laws , Momentum and Energy
Week 3 (June 18 - June 22)	Gravity, Heat , Electricity & Magnetism
Week 4 (June 25 - June 29)	Nuclear Physics, Investigating matter
Week 5 (July 2 - July 6)	Waves- Sound and Light , Structure of atom, isotopes Mass and moles
Week 6 (July 9 - July 13)	Nature of Chemical Bonds, Chemical Reactions, stoichiometry, solution chemistry