Physical Science

PHYS 1100 Summer 2021, 3cr, TR 9:00PM-10:30PM EDT

Kyle Anderson, Earth and Geographic Sciences

Welcome to Physical Science! Throughout the semester we will explore the physics of the natural world and learn what laws and principles govern our environment. We will learn how the principles of motion, energy and momentum drive the movement of the world around us. Additionally, we will explore how a gas or liquid interacts with its surrounding environment. We will discuss the mechanisms of heat transfer and the implications caused by the movement of energy. We will explore the topic of electricity and discover how electric circuits are configured. The relationship between magnetism and electric currents will be discussed. Finally, we will explore the properties of sound waves and light.

A tentative list of topics we will cover this semester:

- Linear Motion
- Newton's Laws of Motion
- Momentum and Energy
- Gravity and Projectile Motion
- Mechanics of a Fluid
- Laws of Thermodynamics and Heat Transfer
- Electricity and Magnetism
- Sound, Light and Mechanical Waves

Course Logistics

- You can be sure to find me during **office hours** TR 10:30PM-11:00PM EDT or we can arrange to meet at a different time. **Email** (kander60@fitchburgstate.edu) is the best way to communicate.
- A **Blackboard** site (blackboard.fitchburgstate.edu) will be maintained – you'll find discussion boards, weekly announcements, course documents, lecture slides, lecture recordings, required readings, homework assignments, labs, tests and grades posted there.
- **Course Prerequisite:**
  - Math 0500 [Algebraic Prep.]
  - OR Advanced Algebra and Functions Accuplacer placement exam
  - OR completion of credit bearing mathematics course
- **Required Textbook:** *Conceptual Physical Science* - Paul G. Hewitt – 6th Edition, 2017; **ISBN:** 978-0-134-06049-1

Course Outline

- **Lectures:**
  - Lectures will be provided in an ***asynchronous*** format.
  - All recorded lecture videos will be posted on blackboard.
  - The PDF document of the lecture slides will also be posted on blackboard.
- **Worksheets and Problem Solving:**
  - A ***synchronous*** portion of the class will be held on TR 9:00PM-10:30PM EDT.
  - During this live portion of the class, we will complete worksheets and practice problem solving skills.
  - Worksheets will be based off the current weeks lecture topics.
- **Labs:**
  - All labs will be completed in an ***asynchronous*** format.
  - A lab procedure will lead students through an online simulation, where they will answer corresponding lab questions.
- **Tests:**
  - All tests will be completed in an ***asynchronous*** format.
  - Tests will be given through blackboard and will need to be completed on the assigned date.

Course Activities and Grading

Worksheets and Homework Assignments (30% of course grade)

- Worksheets not completed during the class period will be due the next class meeting. Late worksheets will be penalized 10% for each class meeting they are late.
- Homework assignments must be submitted by the assigned due date posted on blackboard. Late assignments will be penalized 10% for each day they are late.
- Your lowest worksheet or homework assignment grade will be dropped.

Labs (25% of course grade)

- 8 online lab simulations and corresponding lab questions will be completed remotely.
- Labs not completed by the assigned due date will be penalized 10% for each day they are late.
- Your lowest lab grade will be dropped.

Tests (30% of course grade)

- Three tests will be given during the semester, and will include topics from lecture slides, assigned readings, homework assignments, and worksheets.
- Make-up tests will not be allowed, unless prior arrangements have been made.

Final Exam (15% of course grade)

- Everyone must take the cumulative final exam scheduled on Friday August 13$^{th.}$

Ensuring your success

Follow these basic steps in order to achieve course goals:

Attend every synchronous class period, and arrive on time

Prepare for class by completing assigned readings and watching lecture recordings

Participate in class discussion and **engage** in learning activities

Review course materials along the way

Course Policies

***Class contributions*:** Attendance and participation are expected for synchronous worksheet meetings. Please communicate with me about absences, whether due to planned or emergency situations.

***Academic integrity*:** All Fitchburg State students are held to the highest standards of academic integrity. Although much of our class will be group-based learning, **credit will only be earned for work that is your own**. Note that academic dishonesty includes cheating, fabrication, plagiarism, and facilitating dishonesty; any student who violates standards for academic integrity will be subject to the appropriate disciplinary action.

***Learning accommodations*:** Any student with a need for learning accommodations should make arrangements through Disability Services early in the semester. Please discuss these arrangements with me as soon as possible to ensure appropriate planning.

***Grading*:** Grades will be assigned in accordance with Fitchburg State's grading policy (percentage earned vs 4.0 scale shown below); *Grades that fall between intervals will be rounded to the higher number*.

95-100 4.0	92-94 3.7	89-91 3.5	86-88 3.3	83-85 3.0	80-82 2.7	77-79 2.5

74-76 2.3	71-73 2.0	69-70 1.7	67-68 1.5	64-66 1.3	60-63 1.0	0-59 0.0

To put meaning to these numbers, consider the following from the Fitchburg State catalog:

The grade of 4.0 implies excellence in thinking and distinguished performance within the domain of a subject and course, along with extensive development of a range of knowledge acquired through the exercise of critical thinking skills and abilities. This level work is consistently clear, precise, well-reasoned and displays depth of insight.

The grade of 3.0 implies sound thinking and performance within the domain of a subject and course, along with the development of a range of knowledge acquired through the exercise of critical thinking skills and abilities. This level work is generally clear, precise, well-reasoned and displays some depth of insight.

The grade of 2.0 implies mixed thinking and performance within the domain of a subject and course, along with some development of a range of knowledge acquired through the exercise of critical thinking skills and abilities. This level work is inconsistently clear, precise, well-reasoned and does not typically display depth of insight.

The grade of 1.0 implies limited thinking and performance within the domain of a subject and course, and the student displays limited critical thinking skills and abilities requisite to understanding course content. The student attempts to acquire knowledge by memorization rather than through comprehension and understanding. This level work represents thinking that is typically unclear, imprecise, and poorly reasoned, and does not display depth of insight.

The grade of 0.0 implies poor thinking and performance within the domain of a subject and course, and the student does not display critical thinking skills and abilities requisite to understanding course content. The student relies on acquiring knowledge by memorization rather than through comprehension and understanding. This level work represents thinking that is regularly unclear, imprecise, and poorly reasoned, and is lacking depth of insight.