Santiago Canyon College Division of Math & Sciences **Physical Science 115**

Course Syllabus – Fall 2015

**Course**: Physical Science 115 (Ticket # 99639)

**Lecture & Lab:** Tuesday and Thursday: 8:30 AM – 11:40 AM

**Instructor:** Dr. Asma Said

1. **mail:** [said\_asma@sccollege.edu](mailto:swift_cynthia@sccollege.edu)

**Required Text & Lab Manual:** Physical Science by Bill W. Tillery, custom edition

**Blackboard Address:** [http://rsccd.blackboard.com](http://rsccd.blackboard.com/)

**Course Description:** An investigation of basic principles of physics and chemistry including matter, physical and chemical properties, energy, motion, light, atomic structure, bonding, solutions and chemical reactions. The inter- dependence of chemistry and physics will be emphasized. Designed for non-science majors, concepts are introduced in lab through inquiry and further developed during discussion.

# Critical Thinking

Many students find physics and chemistry difficult because it goes beyond memorization by requiring higher level thinking skills (levels 4 through 6 below). Not only are these skills needed for science, but employers consistently rank critical thinking and problem-solving ability near the top of their list of desired traits in valued employees.

* 1. At Knowledge Level of Learning a student can define terms.
  2. At Comprehension Level of Learning a student can work assigned problems and can example what they did.
  3. At Application Level of Learning a student recognizes what methods are used and then uses the methods to solve problems.
  4. At Analysis Level of Learning a student can explain why the solution process works.
  5. At Synthesis Level of Learning a student can combine the part of a process in new and useful ways.
  6. At Evaluation Level of Learning a student can create a variety of ways to solve the problem and then, based on established criteria, select the solution method best suited for the problem.

# Student Learning Outcomes

Students who successfully complete this course and its requirements will be able to…

1. Correctly analyze natural phenomena using the concepts of physics and chemistry.
2. Investigate physical phenomena using appropriate equipment and methods, make valid comparisons with theoretical predictions, and communicate those results.

**Accommodations for Disabilities:** Students with verifiable disabilities who want to request academic accommodations are responsible for notifying their instructor and Disabled Students Programs and Service (DSPS) as early as possible in the semester. To arrange accommodations, contact DSPS by phone (714) 628-4860 or (714) 639-9742 (TTY-for deaf students) or stop by the DSPS Center in E-105.

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**Student Conduct:** All students are responsible for maintaining appropriate conduct while enrolled in classes through the Rancho Santiago Community College District (RSCCD). Guidelines for student conduct are set forth in the RSCCD “Standards of Student Conduct” policy. Detailed information regarding student discipline and rights within this policy is available in the college catalog and student handbook. Students who violate the Standards of Conduct are subject to disciplinary action which includes, but is not limited to, removal from class, suspension and expulsion.

--Cell phone use is considered rude and distracting during class time.

**On Cheating:** It’s perfectly OK to share information and ideas with other students. Helping and instructing are encouraged, but copying is completely inappropriate and unacceptable. It is NEVER OK for two students to turn in two copies of the same homework assignment even if they worked on it together. It is OK to make a reasoned mistake; it is wrong to copy. No credit will be given for copied work. It is also subject to school rules about plagiarism and cheating. Please refer to the ACADEMIC HONESTY POLICY in the SCC catalog for more information.

**Calculators:** Students are required to have their own scientific calculator for this course. The calculator should be brought to all lectures, labs, and exams. The calculator in your cell phone is not appropriate and using it during exams will be considered cheating.

**Homework:** Written assignments will be announced in class and posted in BlackBoard ([http://rsccd.blackboard.com](http://rsccd.blackboard.com/) or instructor’s website(www.asmasaid.weebly.com). In addition to posted assignments, students are expected to read the chapters that accompany lectures and look up information as needed.

**In-class Labs and Activities:** Bring your textbook and lab papers with you to class each day. You will be turning in completed activities each day at the end of class.

**Attendance & Drop Policy:** Attendance to lecture and lab is required. It is the student’s responsibility to withdraw officially from a course. However, because of enrollment demand, a student may be dropped by the instructor,when not appearing at the first class meeting. A student may also be dropped for excessive absences when the total hours of absence exceeds 10% of the total scheduled hours for the class.

**Category Breakdown:** Your semester grade is a weighted grade. The approximate categories are listed below. The weight assigned to each category is subject to change. Grades are updated weekly in BlackBoard ([http://rsccd.blackboard.com](http://rsccd.blackboard.com/)).

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| Homework & In-class Assignments (including lab reports) | 40% |
| Unit Exams | 50% |
| Final Exam | 10% |

**Exams:** An exam will be given for each unit covered in class. More information about each exam will be given in class.

Unit 1: Overview of Science, Vectors, and Motion

Unit 2: Forces, Momentum and Gravity

Unit 3: Energy and Heat

Unit 4: Electricity, Waves, and Light

Unit 5: Atoms and the Periodic Table

Unit 6: Chemical Reactions

Two Part Final Exam

The dates for the above exams are listed on the next page. You will not be allowed to make up an exam. If you are unable to take one of the exams you must notify me before the exam. If you have a legitimate, verifiable excuse, the percentage from the final exam may be used to replace the missed exam.

**Grade Breakdown**: Letter grades will be assigned based upon the following criteria:

A = 100 - 90.00 %,

B = 89.9 - 80.00 %,

C = 79.9 - 65.00 %,

D = 64.9 - 55.00 %,

and F for below 55%.

Physical Science 115 – Fall 2012 --This is a tentative schedule; dates are subject to change. Please check Blackboard for up-to-date information.

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| **Wk** | **Day** | **Date** | **Lecture and Lab** | **Day** | **Date** | **Lecture and Lab** |
| 1 | T | 8/25 | Class procedures; **Chapter 1 What is Science?**  Activity – Precision in Measurements | TH | 8/27 | Experiment 1: Graphing; Activity-height vs. volume, |
| 2 | T | 9/1 | Notes on Vectors and density; Experiment 2: Ratios; | TH | 9/3 | Activity—Forces and Vectors |
| 3 | T | 9/8 | **Chapter 2 Motion**; Experiment 3: Motion; Experiment 4: Free Fall | TH | 9/10 | Notes: Inertia  **Exam 1**: Overview of Science, Vectors, and Motion |
| 4 | T | 9/15 | Notes on Newton’s Laws; Experiment 7: Newton’s Second Law | TH | 9/17 | Notes on Momentum: Experiment 8: Conservation of Momentum |
| 5 | T | 9/22 | **Chapter 3 Energy**  Activity—Conservation of Energy | TH | 9/24 | Discussion Questions -- Energy  **Exam 2**: Forces and Momentum |
| 6 | T | 9/29 | **Chapter 4 Heat and Temperature** ; Activity—Mixing Warm and Cold Water | TH | 10/1 | Notes on Calorimetry, Heat Transfer, and the Laws of Thermodynamics; Calorimetry Exercises |
| 7 | T | 10/6 | Experiment 18: Specific Heat | TH | 10/8 | **Chapter 5 Wave Motion and Sound** (Notes)  **Exam 3**: Energy and Heat |
| 8 | T | 10/13 | **Chapter 6 Electricity**; Experiment 20: Electric Circuits; Experiment 21: “Series and Parallel Circuits.” | TH | 10/15 | Notes: Electric Circuits; Experiment 22: Ohm’s Law |
| 9 | T | 10/20 | **Chapter 7 Light**  Activity—Light reflection and Refraction | TH | 10/22 | Notes—The Atom and the Periodic Table  **Exam 4**: Electricity, Waves, and Light |
| 10 | T | 10/27 | **Chapter 8 Atoms and Periodic Properties**; Activity—The Atom Time Line, Martian Periodic Table | TH | 10/29 | Notes: The Atomic Spectra, Activity—Atomic Spectra |
| 11 | T | 11/3 | **Chapter 9 Chemical Bonds**; Chemical Bonding, Formulas and Names for Ionic Compounds, Lewis Dot | TH | 11/5 | Group Discussion and Notes – Classification of Matter; Physical and Chemical Properties |
| 12 | T | 11/10 | Activity—Separation of a Mixture | TH | 11/12 | **Chapter 10 Chemical Reactions** (Notes)  **Exam 5**: Atoms and the Periodic Table |
| 13 | T | 11/17 | Molecular Weight, Percent Composition, Chemical Reactions; Types of Chemical Reactions | TH | 11/19 | Activity—Percent Composition |
| 14 | T | 11/24 | Notes—The Law of Definite Proportions Synthesis of Zinc Chloride (Day 1) | TH | 11/26 | *Thanksgiving Holliday* |
| 15 | T | 12/1 | Synthesis of Zinc Chloride (Day 2) Balancing Chemical Reactions | TH | 12/3 | **Exam 6**: Chemical Reactions |
| 16 | T | 12/8 | **Final Exam – Part I** | TH | 12/10 | **Final Exam – Part 2** |

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