Instructor Information

Instructor: Mr. J Shaw  
Office: Building B 105B  
Mailbox: Science Building  
Hours: M/W 8-9, T/R 8-9, W 1-2, R 4-5  
Phone: 501-812-2265  
Email: jshaw@uaptc.edu

*All emails and telephone calls will receive a response within 24-48 hours

Chair: Mr. Russell 501-812-2705 trussell@uaptc.edu  
Dean: Dr. Howe 501-812-2342 mbryanhowe@uaptc.edu

*If your emails and telephone calls do not receive a response within 48 hours, the appropriate chain of command is above.

Course Information
This course meets twice a week on campus  
Thursday Class 6pm, Tuesday Lab 6pm  
4 Credit Hours (3 hours lecture per week, 2 lab hours)

Catalog Description
This is a general survey course of the physical sciences designed for general education. Course topics include physics and chemistry and may also include other physical science topics. Lab is required. Prerequisite: A score of 22 or above on the Math section of the ACT, or a score of 97 or above on the Accuplacer Elementary Algebra test, or a score of 50 or above on the COMPASS Math Placement test, or completion of all required zero (0) level mathematics coursework.

Course Materials
Required textbooks:

Textbook: FREE ONLINE DOWNLOAD@ OPENSTAX  
https://cnx.org/contents/RTmulxzM@7.150:C4ufbA5H@4/Early-Ideas-in-Atomic-Theory  
Physics: College Physics, Urone and Hinrichs, OpenStax, Rice University, Copyright 2017, ISBN -10-1-947172-01-8  
https://cnx.org/contents/Ax2o07Ul@9.95:HR_VN3f7@3/Introduction-to-Science-and-th

TI30XI Scientific Calculator or equivalent

Additional Resources: Colored Pencils
Online Simulations https://phet.colorado.edu/  
Blackboard Supplemental Shell  
www.cstephenmurray.com  
NewsELA https://newsela.com  

Mission Statement

University of Arkansas – Pulaski Technical College provides access to high-quality education that promotes student learning and enables individuals to develop to their fullest potential.

Institutional Learning Outcomes and General Education

UA-PTC supports a college-wide institutional learning assessment program which concerns effective instructional methods and promotes student learning achievement by assessing:

1. Communication  
2. Critical Thinking  
3. Cultural Awareness  
4. Information Literacy  
5. Professionalism  
6. Quantitative Literacy  
7. Technology Literacy

For more information, please consult the following website: https://uaptc.edu/sla/learning-outcomes/student-learning-outcomes

Department / Program Learning Outcomes

The Physical Science department, consistent with the College’s mission and the Division’s objectives, encourages the success of its students in the health related fields and academic disciplines emphasizing Critical Thinking and Quantitative Literacy by the following program outcomes:

1. The student will realize the definition of the specific discipline under study.  
2. The student will assign and demonstrate the use of significant figures in numbers used in calculations resulting in values and units dictated by the rules of significant figures.  
3. The student will begin with measurement values and units and make unit conversions between the Metric and American systems.  
4. The student will build a pictorial and mental model of the chemical elements based on their internal and external structure.  
5. The student will generate the appropriate electron configuration in both neutral and charged elements for use in making compounds.  
6. The student will apply the rules of naming compounds to include ionic, covalent, acids, and bases.  
7. The student will utilize the attractive properties of elements and ions in the formation of both the ionic and covalent bond.
8. The student will arrange both ionic and covalent compounds and some elements in the appropriate form of a balanced chemical equation.
9. The student will apply the mole concept to the balanced chemical equation to calculate the amounts of substances that are involved during a chemical change.
10. Students will demonstrate an understanding of force and motion through the use of vectors in speed calculations and the application of Newton’s Laws to solve accelerated motion, force and momentum problems.
11. Students will realize a relationship between work, power and energy by solving problems that include the quantities of work, kinetic and potential energy.
12. Students will distinguish between temperature and heat by predicting how a substance’s temperature will change as heat is added, based on the specific heat of the substance.
13. Students will demonstrate an understanding of electricity and magnetism through the application of Ohm’s Law to solve parallel and series circuits.

Student Learning / Course Outcomes

ACTS
The student will explain, describe, discuss, recognize, and/or apply knowledge and understanding of the following:

1. Scientific method
2. Work and energy
3. Chemical elements
4. Measurement and error
5. Temperature and heat
6. Chemical bonding
7. Force and motion
8. Electricity and magnetism
9. Chemical reactions and mole concept

Policies

Report a Complaint or Concern

UA-PTC takes very seriously complaints and concerns regarding the institution. Most complaints or concerns of a specific nature should be initiated and resolved at the campus level through normal college processes whenever possible. UA - Pulaski Technical College receives and resolves complaints using a variety of methods. To report a complaint or concern, please follow the link below.

https://www.uaptc.edu/report-a-concern-complaint

Attendance Policy

Agencies granting financial assistance may be notified of the violation of the attendance policy by students receiving financial aid.

Attendance is taken starting the first day of the semester, with the exception of students who enroll after classes have started. Teachers have the right to count students as absent if they arrive late to class, leave class early, or go in and out of the classroom during class time. Teachers have the right to lower a student’s grade based on excessive absences.
Any student who does not attend class within the first two weeks of class will be considered a “no show” according to the campus attendance policy and will be reported as such and dropped from the class. Teachers have the right to enforce UA-PTC’s administrative drop policy for days of consecutive nonattendance. Such particulars as determined by the instructor are detailed in the paragraph below.

Attendance Artifact Policy

Attendance and Participation are both required for this class and are tracked using course login records as well as assignment and/or test submissions. The instructor may drop students if you miss two submission requirements such as an assignment or quiz. Agencies granting financial assistance may be notified of violations of the attendance policy by students receiving financial aid.

In an online class, eligibility for Financial Aid is based on student participation. Logging into the course does not constitute participation. For purposes of roster certification, students must complete a gradable attendance artifact.

Course Policies

The UA-PTC Catalogue rules and regulations will be enforced in this course at all times.

Professional behavior is required. Punctual attendance and intelligent participation are expected. Particulars as determined by the instructor are detailed in the paragraph below.

Appropriate behavior is expected for all communications, including any notes, email messages, or telephone conversations. Some guidelines for communication are included in this syllabus to help you.

Grading Policy

Letter grades will be based on the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 to 100%</td>
</tr>
<tr>
<td>B</td>
<td>80 to 89%</td>
</tr>
<tr>
<td>C</td>
<td>70 to 79%</td>
</tr>
<tr>
<td>D</td>
<td>60 to 69%</td>
</tr>
<tr>
<td>F</td>
<td>0 to 59%</td>
</tr>
</tbody>
</table>

Grade Distribution

Your grade in the course will be determined as follows:

- **Lab Experiments** 25 percent
- **Homework** 10 percent
- **Quizzes** 15 percent
- **Exams** 25 percent
- **Information Literacy** 5 percent
- **Final Exam** 20 percent
Write a 6 page research paper based on a topics in chemistry, physics, or engineering provided by the instructor. Prepare a power point presentation to support your paper. It must have four academic sources with at least one each from print, electronic and periodical media. Please write your own words throughout the paper. Plagiarism is a serious, specific violation of UAPTC’s Academic Integrity Policy; dealt with per the Student Handbook. Keep all quotes minimal (at most one sentence per paragraph) and explain them in the paragraph containing them.

1. Times New Roman 12 point font, double spaced;
2. references must be listed on a separate, final 6" page of the report;
3. the project is 5 percent of your final grade with the following components
   - Selection 10 pts
   - Outline 20 pts
   - Paper 50 pts
   - Power Point 20 pts

**UA-PTC Gradable Attendance Artifact Policy**

In an online class, eligibility for Financial Aid is based on student participation. Logging into the course does not constitute participation. For purposes of roster certification, students must complete a gradable attendance artifact.

**Academic Integrity**

It is expected that all students who attend UA-PTC conduct themselves in a manner appropriate for the college experience. Academic integrity is a vital component of collegiate behavior. The UA-PTC catalogue states, “The gaining of knowledge and the practice of honesty go hand-in-hand.”

The catalogue also states, “The responsibility and authority of initiating discipline arising from violations of the rules against dishonesty during the process of the course are vested in the instructor of that course.”

The complete Academic Integrity Policy is in the UA-PTC code of conduct.

Please be very specific about your plagiarism policy. Vague plagiarism policies may not hold up on appeal.

**Accommodation Policy**

Services for Students with Disabilities: UA-PTC is committed to fulfilling all federal requirements as stated in the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the American with Disabilities Amendments Act (ADAAA) of 2008. Accommodations are available to students who have documented disabilities. Students who request accommodations must register with the Disability Services Office (Main Campus: 501-812-2738 or South Campus: 501-812-2862) and must provide current and relevant documentation.

Students requesting accommodations should inform the instructor at the beginning of the course or as soon as accommodations are approved. It is the student's responsibility to provide their
Accommodation Letter to the instructor. Accommodations are not retroactive and will only be provided once your instructor receives the Accommodation Letter.

**Student Code of Conduct**

All students are expected to abide by the UA-PTC Student Code of Conduct. For the full Student Code of Conduct, access the most current version of the UA-PTC Academic Catalog. [http://uaptc.azurewebsites.net/docs/default-source/course-catalog/2017-18-academic-catalog.pdf?sfvrsn=a08a3038_2](http://uaptc.azurewebsites.net/docs/default-source/course-catalog/2017-18-academic-catalog.pdf?sfvrsn=a08a3038_2)

**Sexual Misconduct**

No person at Pulaski Technical College will, on the basis of gender, be excluded from participation in, be denied benefits of, or be subjected to sex discrimination, sexual harassment or sexual misconduct under any education program or activity. All college administrative policies and procedures regarding sex discrimination, sexual harassment, and sexual misconduct are in compliance with Title IX. Students who feel they are victims of sexual misconduct should contact the UA-PTC Title IX Deputy Coordinator for Students:

Michelle Anderson, Director of Student Life and Leadership
Campus Center Building Room 216
501-812-2756
manderson@uaptc.edu

**Course Evaluations**

Students may be asked to evaluate their instructor and course near the end of the semester. These student evaluations are very important to the improvement in the quality of instruction and course materials. All results are anonymous and shared with the faculty only after the semester is over and grades have been posted.

**Information Literacy**

UA-PTC is committed to the Information Literacy Competency Standards for Higher Education as established by the Association of College and Research Libraries and endorsed by the National Forum on Information Literacy. Therefore, all courses will incorporate an information literacy component so that, by graduation, all students will be able to recognize the need for information, then locate, evaluate, synthesize, and communicate information in an ethical manner. Information literacy encompasses critical thinking, research, media, technology, health, business, and visual literacy skills to produce lifelong learners who can make informed decisions in the workplace and in their personal lives.
### Tentative Course Schedule

Four (4) concept tests will be given in class during the semester. The date of a concept test will be announced at least one week in advance. **Exams cannot be made up.**

The following is a course outline.

| Wk 0 (8/15-17) Module 1 | \begin{tabular}{|l|} \hline Read College Physics: \\
1.2 Physical Quantities and Units \\
1.3 Accuracy, Precision, and Significant Figures \\
NO LAB \\
Participate in class discussion \hline \end{tabular} | \begin{tabular}{|l|} \hline Wk 1 (8/20-24) Module 1 \\
Read Chemistry Atoms First \\
2.1 Early Atomic Theory \\
2.2 Evolution of Atomic Theory \\
2.3 Atomic Structure and Symbols \\
Participate in class discussion \\
NO LAB: \hline \end{tabular} |
| --- | --- | --- |
| Wk 2 (8/27-31) Module 2 | \begin{tabular}{|l|} \hline Read Chemistry Atoms First \\
3.1 Electromagnetic Energy **"Line Spectra" at the bottom** \\
3.4 Electron Configuration \\
3.6 The Periodic Table \\
Participate in class discussion \\
LAB Graph Analysis, Problem Session \\
- HMWK-Blackboard \\
Submit Quiz \hline \end{tabular} | \begin{tabular}{|l|} \hline Wk 3 (9/3-7) Module 3 \\
Read Chemistry Atoms First \\
3.7 Molecular and Ionic Compounds \\
4.1 Ionic Bonding \\
4.2 Covalent Bonding \\
4.3 Chemical Nomenclature \\
4.4 Lewis Symbols \\
Participate in class discussion \\
LAB Measurements Problem Session \\
EXAM 1 \hline \end{tabular} |
| Wk 4 (9/10-14) Module 4 | \begin{tabular}{|l|} \hline Read College Physics: \\
6.1 Formula Mass \\
6.2 Determining Empirical and Molecular Formula \\
6.3 Molarity \\
7.1 Balancing Equations \\
Participate in class discussion \\
LAB ID of a Liquid Problem Session \\
- HMWK-Blackboard \\
Submit Quiz \hline \end{tabular} | \begin{tabular}{|l|} \hline Wk 5 (9/17-21) Module 5 \\
Read College Physics: \\
2.2 Vectors, Scalars, and Coordinate Systems \\
2.3 Time, Velocity, and Speed \\
2.4 Acceleration \\
2.5 Motion Equations for Constant Acceleration in 1D \\
Participate in class discussion \\
LAB Mole Composition Problem Session \\
- HMWK-Blackboard \\
Submit Quiz \hline \end{tabular} |
| Wk 6 (9/24-28) Module 6 | \begin{tabular}{|l|} \hline Read: College Physics: \\
2.7 Falling Objects \\
3.1 Kinematics in Two Dimensions: An Introduction \\
3.2 Vector Addition and Subtraction: Graphical Methods \\
3.5 Addition of Velocities \\
Participate in class discussion \\
LAB Calculations Problem Session \\
EXAM 2 \hline \end{tabular} | \begin{tabular}{|l|} \hline Wk 7 (10/1-5) Module 7 \\
Read: College Physics: \\
4.1 Introduction to Dynamics: \\
4.2 Newton’s First Law of Motion: Inertia \\
4.3 Newton’s Second Law of Motion: \\
4.4 Newton’s Third Law of Motion: \\
Participate in class discussion \\
LAB Chemical Reactions Respond to weekly discussion questions. Problem Session \\
- HMWK Blackboard \\
Submit Quiz \hline \end{tabular} |
<table>
<thead>
<tr>
<th>Week</th>
<th>Days</th>
<th>Module</th>
<th>Read: College Physics</th>
<th>Participate in class discussion</th>
<th>LAB Assignment</th>
<th>Problem Session</th>
<th>Answers</th>
<th>Submit Quiz</th>
</tr>
</thead>
</table>
| **Wk 8** (10/8-12) | Module 8 | **Read:** College Physics:  
6.2 Centripetal Acceleration  
6.3 Centripetal Force  
6.5 Newton's Universal Law of Gravitation | **Participate** in class discussion | **LAB:** Analyze Motion. | **Problem Session**  
- HMWK – Blackboard | | | |
| **Wk 9** (10/15-19) | Module 9 | **Read:** College Physics:  
7.1 Work: The Scientific Definition  
7.2 Kinetic Energy and the Work-Energy Theorem  
7.3 Gravitational Potential Energy  
7.6 Conservation of Energy  
7.7 Power | **Participate** in class discussion | **LAB:** Free Fall | **Problem Session** | | | |
| **Wk 10** (10/22-26) | Module 10 | **Read:** College Physics:  
8.1 Linear Momentum and Force  
8.2 Impulse  
8.4 Elastic Collisions in One Dimension  
8.5 Inelastic Collisions in One Dimension | **Participate** in class discussion | **LAB:** Force Vectors Newton 2nd | **Problem Session**  
- HMWK - Blackboard | | | |
| **Wk 11** (10/29-11/2) | Module 11 | **Read:** College Physics:  
13.1 Temperature  
13.3 The Ideal Gas Law  
14.1 Heat  
14.2 Temperature Change and Heat Capacity  
14.3 Phase Change and Latent Heat  
14.4 Heat Transfer Methods | **Participate** in class discussion | **LAB:** Conservation of Momentum | **Problem Session**  
- HMWK - Blackboard | | | |
| **Wk 12** (11/5-9) | Module 12 | **Read:** College Physics:  
18.1 Static Electricity and Charge: Conservation of Charge  
18.2 Conductors and Insulators  
18.5 Electric Field Lines: Multiple Charges  
18.3 Coulomb's Law  
20.1 Current  
20.2 Ohm's Law: Resistance and Simple Circuits | **Participate** in class discussion | **LAB:** Work Energy Power | **Problem Session**  
- HMWK – Blackboard | | | |
| **Wk 13** (11/12-16) | Module 13 | **Read:** College Physics:  
20.4 Electric Power and Energy  
21.1 Resistors in Series and Parallel  
22.1 Magnets  
22.3 Magnetic Fields and Magnetic Field Lines  
22.4 Magnetic Field Strength: Force on a Moving Charge in a Magnetic Field | **Participate** in class discussion | **LAB:** Conservation of Energy | **Problem Session** | | | |
| **Wk 14** (11/19-23) | Fall Break | | | | | | | |
| **Wk 15** (11/26-30) | Module 15 | **LAB:** Circuits | | | **Problem Session**  
- Info. Literacy Power Point Due | | | |
<p>| <strong>Wk 16</strong> (12/3-7) | Module 16 | <strong>Review:</strong> FINALS | | | | | | |
| <strong>Wk 17</strong> (12/10-17) | Final Week | Thurs.. Dec. 13, (6:30-8:30 pm) | | | | | | |</p>
<table>
<thead>
<tr>
<th>Lab</th>
<th>Phet Simulations Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph Analysis</td>
<td>Graphing Lines</td>
</tr>
<tr>
<td>Lab Measurements</td>
<td>Density</td>
</tr>
<tr>
<td>I.d. of a liquid</td>
<td>Density</td>
</tr>
<tr>
<td>Percent Composition</td>
<td>Sugar and Salt Solutions</td>
</tr>
<tr>
<td>Mole Calculations</td>
<td>Build an Atom, Isotope and Atomic Mass</td>
</tr>
<tr>
<td>Chemical Reactions</td>
<td>Reactant Products</td>
</tr>
<tr>
<td>Analyze Motion</td>
<td>Motion</td>
</tr>
<tr>
<td>Lab Meas’ms Free Fall</td>
<td>Forces and Motion</td>
</tr>
<tr>
<td>Force Vectors</td>
<td>Forces and Motion</td>
</tr>
<tr>
<td>Conservation of Momentum</td>
<td>Collision Lab</td>
</tr>
<tr>
<td>Work Energy Power</td>
<td>Energy Skate Park</td>
</tr>
<tr>
<td>Conservation of Energy</td>
<td>Energy Skate Park</td>
</tr>
<tr>
<td>Circuits</td>
<td>Ohm’s Law</td>
</tr>
</tbody>
</table>

Final Exam Schedule: Thurs. Dec. 13, (6:30-8:30 pm)
Disclaimer: This schedule is a guide for the semester. The instructor reserves the right to amend the schedule as necessary.
Course Agreement Form

Read, complete, and return to instructor:

I have read the course syllabus for Mr Jeff Shaw’s Physical Science class at Pulaski Technical College, and I understand its content. I also understand the rules for the class, and I will follow and abide by these rules, including those relating to attendance, assignments, grading criteria, plagiarism, and behavior.

________________________________________
Semester

________________________________________
Date

________________________________________
Print name

________________________________________
Signature

________________________________________
UA-PTC Email address

________________________________________
Telephone