

**PRAIRIE VIEW A&M UNIVERSITY
DEPARTMENT OF PHYSICS
PHSC 1123-P09- PHYSICAL SCIENCE I
COURSE SYLLABUS - FALL Y2K+8**

Professor: Dr. A. Anil Kumar
Office: Room 330C, E. E. O'Banion Building
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E-mail: aakumar@pvamu.edu
Lectures: MWF 9:00 A.M. - 9:50 A.M.
E.E. O'Banion Building, Room 103
Office hours: MWF: 10:00 AM - 12:00 Noon &
By Appointment



"If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea." - Antoine Saint Exupery, Author and Pilot

"My mother said I must always be intolerant of ignorance but understanding of illiteracy. That some people, unable to go to school, were more educated and more intelligent than college professors." - Maya Angelou, Poet and Professor

"To turn really interesting ideas and fledgling technologies into a company that can continue to innovate for years, it requires a lot of disciplines." - Steve Jobs, Chairman, Apple

Text for the Course:

Physical Science, 7th Edition, Bill W. Tillery, McGraw Hill, ISBN: 978-0-07-304992-1 © 2007

Supplementary Material and Help:

1. Selected information and material will also be made available through the course website - <http://www.pvamu.edu/pages/4968.asp>.
2. A series of tutorial sessions are available through the Physics Department for individual problem discussions with tutors. Visit Room 324 in the E.E. O'Banion Building.
3. A collection of DVDs - "Video Demonstrations of Physics" - is available in Room 324. This set provides an extensive collection of all concepts and explicit demonstrations in physics.
4. A collection of DVDs from the American Institute of Physics on various topics (Example: Physics of Sports) is available in Room 324.
5. A comprehensive set of course material taught and tested will be made available through eCourse. A link will be provided for you in class. (This is a new effort under experimentation.)

Useful Links for Enhancing Your Knowledge and Understanding of the Science in Everyday Life:

1. http://www.stmary.ws/physics/home/links/physics_in_everyday_life.htm
2. How to Dunk a Doughnut - The Science of Everyday Life, by Len Fisher, Penguin Books, ISBN 0-14-30.3438-3 (2003)
3. How Things Work, 3rd Edition, by Louis A. Bloomfield, John Wiley & Sons, ISBN 13978-0-471-46886-8 (2006)
4. Inventing the 20th Century - 100 Inventions that Shaped the World from the Airplane to the Zipper, by Stephen van Dulken, Barnes & Noble, ISBN-13:978-0-7607-8891-2 (2007)

COURSE DESCRIPTION

The course will be conducted in the form of lectures, reading and writing assignments, and submission of weekly reports. All the relevant materials will be posted at <http://www.pvamu.edu/pages/4968.asp>. The course will:

- (i) Emphasize practical applications, especially those that integrate all of the physical sciences.
- (ii) Expose you to concepts and applications in physics, chemistry and astronomy;
- (iii) Provide you with an adequate preparation in critical thinking to enhance your comprehension of concepts and theories in your own disciplines; and
- (iv) Enhance your appreciation for science as an integral part of life.

MY APPROACH TO THE COURSE

My approach to this course is problem-based. For every concept or a set of related concepts, I will introduce a real life application first, discuss the scientific aspects of the application along with its social and societal benefits, and ethical implications. I will then discuss the details of the science behind that application. For instance, I will introduce the technology of airbags in cars, how they work, what the expectations are for them to function effectively and efficiently, how they are designed for different people, etc. I will then introduce concepts from physics, chemistry, electronics and engineering to understand the actual science behind airbags. Such an approach establishes the relevance of the concepts taught to a real world situation, in addition to assisting the learner in retaining the material taught in a more concrete fashion.

GOALS/OUTCOMES

By the end of the course, you should be able to, at a minimum:

- Demonstrate and apply the knowledge of the scientific approach to problem solving - Model a simple system; Perform dimensional analysis; Perform graphical analysis and interpret results.
- Demonstrate, through application, knowledge of Newton's three laws of motion, work, kinetic energy, and potential energy.
- Identify different types of phenomena in a given system or operation.
- Understand fundamental concepts in chemistry, especially the periodic table.
- Relate physical science principles to everyday life.

EVALUATIONS & GRADING

Weekly Reports

You are expected to submit, through e-mail, a weekly report on before close of business each Monday. The format for the weekly report is posted on the website <http://www.pvamu.edu/pages/4968.asp>.

Quizzes

There will be periodic quizzes throughout the semester, usually on a topic that was covered in the previous lecture. Keys for the quizzes will be posted on the website <http://www.pvamu.edu/pages/4968.asp>.

Examinations

There will be four examinations. The dates will be announced in the class and on the website. Keys for the examinations will be posted on the website <http://www.pvamu.edu/pages/4968.asp>.

Occasional Papers

At times during the semester, I will assign a research paper. This paper will be typically 2-3 pages long and addresses a specific subject that should enhance your interest in the course.

Grading Policy

Your grade, in particular the final grade, will be determined on a combination of your performance in the activities stated above. In order to obtain a proper grade, I need to be convinced that you have acquired the necessary knowledge from the course. The following is the overall grade distribution among the various types of assignment.

Weekly Reports	5 points each (maximum)
Quizzes	10 points each (maximum)
Examinations (3)	100 points each (maximum)
Occasional Papers	10 points each (maximum)
Final Examination	200 points (maximum)

STUDENTS WITH DISABILITIES

All lectures will be conducted in the E.E. O'Banion Building, Room 103, which is accessible to persons with disabilities. If you need accommodations in this class related to a disability, please make an appointment with me as soon as possible. My office is located in Room 330C, New Science Building. There is an Office of Disability Services on the campus located in Evans Hall Room 317, Tel: (936) 261-3585. More information is provided online at <http://www.pvamu.edu/pages/4022.asp>.

UNACCEPTABLE BEHAVIOR IN THE CLASSROOM

- Coming late to class, leaving class early without an excuse
- Constant chatting during lecture
- Disrespectful behavior towards the instructor or other students
- Eating or drinking
- Use of cell phones, wireless devices, beepers
- Use of laptops

CONDUCT AND ETHICS

A strict code of conduct and ethics will be imposed during the entire session. You shall take a pledge that you will not copy, steal or plagiarize someone else's work nor will you tolerate anyone else doing the same. You must ensure that all your reports are written by you in your own words. Any material taken from a published report (in print or on the web) must be given appropriate credit by providing a reference. Read the copyright statement carefully so that the conditions under which the report or some material from it is cited, are met. It shall be the policy in this course to discourage any such activity to the extent possible rather than punish. HOWEVER, IN FAIRNESS TO ALL CONCERNED, CHEATING AND PLAGIARISM WILL BE DEALT WITH SEVERELY WHEREVER THEY ARE FOUND. Graduating means more than completing a certain number of hours and obtaining a reasonable GPA. You must strive to develop a code of strict conduct, acquire a sense of discipline, serve as a role model to your juniors and in particular experience the feeling of accomplishment. You are advised to read and abide by the rules and regulations of the University. For more information consult the 2008-2009 Student Conduct Code and Handbook at the website: http://www.pvamu.edu/Include/Student_Code/Conduct%20Code.pdf.

If you have any questions or have any problems that you think I may be able to help with, please do not hesitate to contact me. I am here to help.

HAVE A PRODUCTIVE AND AN ENJOYABLE SEMESTER!

LECTURE SCHEDULE

- We will cover several important concepts from each chapter below. Some parts of each chapter will be assigned to you as reading assignments each week.
- Special Lectures: These will be on modern applications. Examples include:
 - How do modern communications work?
 - What is the state-of-the-art technology that is beneficial to living beings?
 - Is it possible to control the weather, in particular hurricanes?
 - What will the world look like if human beings disappear?
 - What are the careers of the future? Or What jobs are you likely to have? And Do those jobs exist now or are they totally new?

Week:	Start Date	Topic	Comments
1	25-Aug-08	Ch. 17: Introduction & Rocks and Minerals	
2	1-Sep-08	Ch. 17: Introduction & Rocks and Minerals	
3	8-Sep-08	Ch. 18: Plate Tectonics	
4	15-Sep-08	Ch. 18: Plate Tectonics	
5	22-Sep-08	Ch. 2: Motion	Exam-1: In Class Examination Monday, September 22 nd
6	29-Sep-08	Ch. 3: Energy	
7	6-Oct-08	Ch. 4: Heat & Temperature Ch. 5: Wave Motions & Sound	
8	13-Oct-08	Ch. 8: Atoms & Periodic Properties Ch. 9: Chemical Bonds	Exam-2: Mid-Term Examination Friday, October 17 th In Class
9	20-Oct-08	Ch. 9: Chemical Bonds Ch. 6: Electricity	
10	27-Oct-08	Ch. 7: Light	
11	3-Nov-08	Special Lecture - A Modern Application	
12	10-Nov-08	Ch. 10: Chemical Reactions	
13	17-Nov-08	Ch. 23: Weather and Climate	Exam-3: In Class Examination Monday, November 17 th
14	24-Nov-08	Special Lecture - A Modern Application Course Review	Thanksgiving November 27-28
15	1-Dec-08	Course Review/Study Days	Course Review
16	8-Dec-08	Final Examination Period	Exam-4: FINAL Examination Wednesday, December 10 th 8:00 A.M. - 10:00 A.M.
