**PS 109 – 501 2015 Summer II (5099) General Physical Science Syllabus**

**Class Times:** MTWRF 11:00am – 12:50pm , Jun.08 – Jul.9 in Sci. 179 (except Jul.03 holiday).

**Attendance:** Attendance is mandatory. Absenteeism is highly frowned upon. Anything after 3 absences will result in failure for the course. Two tardies are considered as one absence. A tardy of 20 minutes or longer will be considered as an absence. If you miss an exam you must contact me before the next class meeting about a possible make-up.

**Instructor:** Vince George, Sci. 255 ; [george12@marshall.edu](mailto:george12@marshall.edu); [vgeorge@kcu.edu](mailto:vgeorge@kcu.edu); 304-417-9307. Office hours to be arranged.

**Course Description:** PS 109 General Physical Science 3 hrs

The course covers the basic principles and concepts of the universe including energy, and its various forms. Also studied are Force, motion, electricity, magnetism, the wave theory of light, sound, and astronomy.

Physical Science 109 is half of a 2-semester survey of Physical Science, satisfying Core II Natural Science; it forms 1/3 of science content for K-6 Education majors. We will use diagrams and models to describe the appearance of objects (such as the Earth-Sun-Moon system), and explain their behavior via momentum, Force, and Energy. We will treat material properties and processes (from fluid density to electric flow) with an atomic model of Nature. Topics will illustrate Arithmetic practice (add and subtracting, multiplying, ratios and proportion, graphs and slopes); we will write abbreviated words in concise unambiguous form, and manipulate via algebra.

**Required Materials:** textbook: Paul Hewitt’s *Conceptual Physical Science* 5th edition (Pearson 2012); pen or pencil; notebook; calculator with x2.

**Recommended**: a positive attitude; lots of students in your future classes will call this fun. Preparation…. Read the textbook before and after class, and try answering that chapter’s questions. Balance…. Between struggling to understand (by yourself), and asking when you don’t. Time and effort outside of class, 3 or 4 effective hours per day to complete assignments. Discussion…. Question each other, comment on responses, explain your perspective.

**Overview:** We will split the course into 3 Units (one Exam in each Unit).

Unit 1: Ch. 1-4, 26 = units; motion & momentum; Force & motion change; orbits & Energy.

Unit 2: Ch. 11, 5-7, 27 = Light; fluid pressure & density; Temperature & Heat; stars.

Unit 3: Ch. 8-10, 28 = Electricity & Magnetism; Waves & Sound; the Universe.

**Grade components** ~14 Homework Sets X 10 points each~ 140 pts~ 32**%** of total grade

3 unit Exams x 100 pts/Exam = 300 pts~ 68% of total grade

**Letter Scale**: 90 – 100 = A; 80 – 89 = B; 70 – 79 = C; 60 – 69 = D; 59 and below = F.

**Homework:** Homework will be graded on a credit/no-credit basis; although, strict guidelines will adhere to the problem-solving template given as:

1. Diagram(s) with labelled Force and motion vectors.
2. List known(s); and list unknown equal to a question mark (?).
3. Give equation (s) that can be used to solve for the unknown.
4. Use rules of algebra (PEMDAS, LIKE TERMS) to simplify and solve for the unknown.

When doing homework, please do not try to scrunch a lot of stuff into 1 or two sheets of paper. Myself, I usually use a whole page for one problem. In physics class, you can use several pages to solve a problem. Instead, write on the backs of otherwise discarded paper; or, I will try to find you some paper and try to have it readily accessible for each class. I want you to pretend that we are taking this class in Texas, where everything is big. So use large diagrams with long Force vectors and motion vectors, and letters.; and, if have to, a whole page for one problem, at least one side of that sheet!

**Goals:**

1. Learn science content – facts about physical reality, theories of nature, applications of models.
2. Practice its process – measure scenarios, deduce conclusions, exploit different perspectives.
3. Relate science to life – reason by cause effect, explore the tangible, consider implications.
4. Communicate science – by concepts, diagrams, graphs, symbols, arithmetic, math, vocabulary.

**Schedule:** This is Approximate and Tentative!

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| --- | --- | --- | --- | --- | --- |
| Week | Mon. | Tue. | Wed. | Thr. | Fri. |
| Jun.08 | ch.1 distance & time (speed) | ch. 1 Forces  Velocity | ch. 26 & ch.4  Planet orbits | ch.1 & 2  Forces | ch. 2  Force & accel. |
| Jun.15 | ch. 2 ..∑F  ch.3 …Energy | ch.3  E trans; power | ch. 4  gravity details | **Exam 1** | ch. 27 & ch.11  star light |
| Jun.22 | ch. 5  Pressure + flow | ch. 5  gas density | ch. 6  Temperature | ch. 7  Heat | Ch. 37  Stars |
| Jun.29 | **Exam 2** | ch. 11  Mirror & lens | ch.8  electric charge | -------- | ------- |
| Jul.06 | ch.8  electric current | ch.9  magnetism | ch.10  matter waves | ch. 28  galaxies | **Exam 3** |

**Statements that are valid for ALL Classes at Marshall:**

+ Academic dishonesty Policy: progress in science is founded on honesty and openness.

\_ no lying, no cheating, no stealing (plagiarism) – zero tolerance.

+ Incomplete Grade Policy: to receive an “I”, you must have completed ¾ of the course successfully (passing); course must be completed within 1 semester (by 2015 Dec.14).

+ Students with Disability policy: the student must initiate procedures to document a disability, then request accommodation, at the Office of Disability Services (Prichard 117).