PHYSICAL SCIENCE 01

Ticket Number 3280
6:50 P.M. – 10:00 P.M. Wednesdays Room: CMS-028

Instructor: ..... Professor Charles Mallory

Email:..... Professor.Mallory@gmail.com

Web Address: ..... http://TheMalloryFamily.net/ Check this location often. This location will contain old quizzes, tests, handouts, study guides, and grades.

Office Hours:..... Mondays and Wednesday 6:15 PM to 6:50 PM *(Location to be determined)*

SLO:..... Student Learning Outcomes (SLO)

1. Conceptualize and explain simple physical phenomena and identify the related scientific concepts.
2. Describe various forms of motion and identify the forces that produce each.

Text: ..... An Introduction to Physical Science, by Shipman, Wilson & Todd, 12th edition
It is recommended that you purchase this edition of the book. Note that the previous editions of this book will have different questions at the end of each of the chapters.

Attendance:..... This will be taken each class and will count for 5% of your final grade. Please be aware that if you stop coming to class it will be your responsibility to drop the class. **If you stop coming to class and do not take the final you will have earned an "F" in the class.**

Class Description:..... This course is designed for non-science majors. It meets the General Education requirements for Natural Sciences. This survey course covers the general principles of Physics, Chemistry and Astronomy.

Homework: ..... Homework will be given for each chapter and will count for 15% of your grade. The test and final questions will come from the homework. The assignments will be collected and graded. The grading will be based upon the work shown and not just for the answers.

Tests: ..... Seven tests will be given and will count for 50% of your final grade. The test questions will primarily come from the questions at the end of each chapter of the book. Please note that the problems will be slightly changed from the homework questions. Each test is designed to take about 30-45 minutes to complete.

Final:..... The Final will count for 30% of your final grade. The final questions will be taken from the tests and will be slightly changed. The final will be cumulative and cover all tests. **Failure to take the final exam will result in an automatic fail in the course. If you decide to stop coming to class, it is your responsibility to drop the class.**

Grading: ..... The grading will be performed on a semi-modified curve. The grade you will earn will be based on the following scale:

A	90% - 100%
B	75% - 89%
C	60% - 74%
D	45% - 59%
F	0% - 44%

I guarantee that you will receive at least the above grade if not higher due to class performance. You will be provided with the grades periodically during class through the email address you provided during registration.

Grade Breakdown:

Attendance	5%
Tests	50%
Homework	15%
Final Exam	30%

TENTATIVE LECTURE SCHEDULE

Date	Day	Chapter	Material
August 29, 2012	Wednesday	Intro	Significant Digits
			Scientific Method
		1	Measurements
		Review Chapter 1 Questions	
September 5, 2012	Wednesday	1	Measurements
		2	Motion
		Review Chapter 2 Questions	
September 9, 2012	Sunday	*Last day to drop class without receiving a "W"*	
September 12, 2012	Wednesday	**Test 1 – Introduction Chapter 1 & 2 (in class test)**	
		3	Force and Motion
		Review Chapter 3 Questions	
September 19, 2012	Wednesday	4	Work and Energy
		Review Chapter 4 Questions	
September 26, 2012	Wednesday	**Test 2 – Chapters 3 & 4 (in class test)**	
		5	Temperature and Heat
		Review Chapter 5 Questions	
October 3, 2012	Wednesday	6	Waves
		Review Chapter 6 Questions	
October 10, 2012	Wednesday	**Test 3 – Chapters 5 & 6 (in class test)**	
		7	Wave Effects and Optics
		Review Chapter 7 & 8 Questions	
October 17, 2012	Wednesday	8	Electricity and Magnetism
		Review Chapter 7 & 8 Questions	
October 24, 2012	Wednesday	**Test 4 – Chapters 7 & 8 (in class test)**	
		9	Atomic Physics
		Review Chapter 9 Questions	
October 31, 2012	Wednesday	10	Nuclear Physics
		Review Chapter 10 Questions	
November 7, 2012	Wednesday	**Test 5 – Chapters 9 & 10 (in class test)**	
		11	The Chemical Elements
		Review Chapter 11 Questions	
November 14, 2012	Wednesday	12	Chemical Bonding
		Review Chapter 12 Questions	
November 21, 2012	Wednesday	**Test 6 – Chapters 11 & 12 (in class test)**	
		13	Chemical Reactions
		Review Chapter 13 Questions	
November 18, 2012	Sunday	*Last day to drop class with a "W"*	
November 28, 2012	Wednesday	**Test 7 – Chapter 13 (in class test)**	
		--	Astronomy
December 5, 2012	Wednesday	**Test 8 – Astronomy (Astronomy take home test)**	
		Review Astronomy	
December 12, 2012	Wednesday	**Final 8:00PM - 10:00PM**	
		Turn In Astronomy Take Home Test	

ASSIGNED HOMEWORK FOR EACH CHAPTER

(Solutions may be found on my website)

Chapter 1
- Exercises
  - 1, 2, 3, 4, 5, 6, 17, 19, 20, 21, 22

Chapter 2
- Exercises
  - 7, 9, 11, 13, 18

Chapter 3
- Exercises
  - 4, 9, 21

Chapter 4
- Exercises
  - 4, 12, 15, 16, 20, 24

Chapter 5
- Exercises
  - 5, 11, 18, 21

Chapter 6
- Exercises
  - 3, 7, 11, 13

Chapter 7
- Exercises
  - 1, 6, 15

Chapter 8
- Exercises
  - 13, 19, 20

Chapter 9
- Multiple Choice Questions
  - 4, 5, 6
- Fill in the Blank Questions
  - 3, 4, 5, 7, 9
- Short Answer Questions
  - 6, 7, 9
- Exercises
  - 2

Chapter 10
- Multiple Choice Questions
  - 2, 3, 8
- Fill in the Blank Questions
  - 1, 3, 4
- Short Answer Questions
  - 1, 2, 3, 4, 7, 8, 9, 10

Chapter 11
- Matching
  - i, j
- Multiple Choice Questions
  - 6, 11
- Short Answer Questions
  - 3, 6, 19
- Exercises
  - 1, 2, 17, 18

Chapter 12
- Multiple Choice Questions
  - 4, 6, 7,
- Fill in the Blank Questions
  - 7, 8, 11

Chapter 13
- Exercises
  - 1, 2

PERIODIC TABLE OF THE ELEMENTS

Period	IA	IIA	IIIB	IVB	VB	VIB	VIIB	------- VIII -------			IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
1	1 **H** 1.008																	2 **He** 4.003
2	3 **Li** 6.941	4 **Be** 9.012											5 **B** 10.81	6 **C** 12.01	7 **N** 14.01	8 **O** 16.00	9 **F** 19.00	10 **Ne** 20.18
3	11 **Na** 22.99	12 **Mg** 24.31											13 **Al** 26.98	14 **Si** 28.09	15 **P** 30.97	16 **S** 32.07	17 **Cl** 35.45	18 **Ar** 39.95
4	19 **K** 39.10	20 **Ca** 40.08	21 **Sc** 44.96	22 **Ti** 47.88	23 **V** 50.94	24 **Cr** 52.00	25 **Mn** 54.94	26 **Fe** 55.85	27 **Co** 58.47	28 **Ni** 58.69	29 **Cu** 63.55	30 **Zn** 65.39	31 **Ga** 69.72	32 **Ge** 72.59	33 **As** 74.92	34 **Se** 78.96	35 **Br** 79.90	36 **Kr** 83.80
5	37 **Rb** 85.47	38 **Sr** 87.62	39 **Y** 88.91	40 **Zr** 91.22	41 **Nb** 92.91	42 **Mo** 95.94	43 **Tc** (98)	44 **Ru** 101.1	45 **Rh** 102.9	46 **Pd** 106.4	47 **Ag** 107.9	48 **Cd** 112.4	49 **In** 114.8	50 **Sn** 118.7	51 **Sb** 121.8	52 **Te** 127.6	53 **I** 126.9	54 **Xe** 131.3
6	55 **Cs** 132.9	56 **Ba** 137.3	57 **La*** 138.9	72 **Hf** 178.5	73 **Ta** 180.9	74 **W** 183.9	75 **Re** 186.2	76 **Os** 190.2	77 **Ir** 190.2	78 **Pt** 195.1	79 **Au** 197.0	80 **Hg** 200.5	81 **Tl** 204.4	82 **Pb** 207.2	83 **Bi** 209.0	84 **Po** (210)	85 **At** (210)	86 **Rn** (222)
7	87 **Fr** (223)	88 **Ra** (226)	89 **Ac~** (227)	104 **Rf** (257)	105 **Db** (260)	106 **Sg** (263)	107 **Bh** (262)	108 **Hs** (265)	109 **Mt** (266)									

Lanthanide Series*	58 **Ce** 140.1	59 **Pr** 140.9	60 **Nd** 144.2	61 **Pm** (147)	62 **Sm** 150.4	63 **Eu** 152.0	64 **Gd** 157.3	65 **Tb** 158.9	66 **Dy** 162.5	67 **Ho** 164.9	68 **Er** 167.3	69 **Tm** 168.9	70 **Yb** 173.0	71 **Lu** 175.0
Actinide Series~	90 **Th** 232.0	91 **Pa** (231)	92 **U** (238)	93 **Np** (237)	94 **Pu** (242)	95 **Am** (243)	96 **Cm** (247)	97 **Bk** (247)	98 **Cf** (249)	99 **Es** (254)	100 **Fm** (253)	101 **Md** (256)	102 **No** (254)	103 **Lr** (257)

SIGNIFICANT FIGURES

	Example	Sig. Digits	Sci-Notation
1 All non-zero digits are significant			
	1.589	4	1.589E+00
	0.897	3	8.97E-01
	36000	2	3.6E+04
2 Significant Zero's			
a All sandwiched zero's	13.02	4	1.302E+01
	1.0002	5	1.0002E+00
	10.5	3	1.05E+01
b All trailing zero's preceded by a digit to the right of the decimal point.	5.000	4	5.000E+00
	20.000	5	2.00000E+01
	15.00	4	1.500E+01
3 Non significant Zero's			
a Leading Zeros	0.0200	3	2.00E-02
	0067	2	6.7E+01
b Trailing Zero's to the left of the decimal point in a number without a decimal point	56000	2	5.6E+04
	1360	3	1.36E+03

*NOTE: Write the numbers in exponential notation if you have any doubt. All zeros used to indicate the power of 10 (order of magnitude) are not significant.

ROUNDING OFF

1 If the last digit to be retained in a number is followed by a number less than 5 (<5), **ROUND DOWN.**

Round to 3 significant figures:

28.23	rounds to	28.2
578.1	rounds to	578

2 If the last digit to be retained in a number is followed by a number greater than 5 (>5), **ROUND UP.**

Round to 2 significant figures:

5.998	rounds to	6.0
0.00258	rounds to	0.0026
3.6502	rounds to	3.7

3 If the last digit to be retained in a number is followed by 5 (0000000… implied), **ROUND** the last digit retained to an **EVEN NUMBER.**

Round to 2 significant figures:

1.75	rounds to	1.8
1.050	rounds to	1.0
1.45	rounds to	1.4

Round to 4 significant figures:

67.835	rounds to	67.84
67.885	rounds to	67.88

CALCULATIONS
UNCERTAINTY AND SIGNIFICANT FIGURES

The <u>Leaset Accurate Number (LAN)</u> determines the number of digits to which the answer is expressed.

Addition and Subtraction

1. The LAN is the number with the least number of digits following the decimal point.
2. The answer (*sum* or *difference*) can have no more digits *following* the <u>decimal point</u> than the LAN.

Example:

What is the total mass of a mixture made by mixing the following substances?

212	g water (LAN)
1.8	g salt
1.88	g sugar
~~*215.98*~~	~~*g (incorrect)*~~
216	g (correct)

Multiplication and Division

1. The LAN is the number with the least number of significant figures.
2. The answer (*product* or *quotient*) can have no more significant figures than the LAN.

Example:

Calculate the volume of a rectangular solid that has a length of 4.16 cm, a width of 2.2 cm, and a height of 2.00 cm.

Volume = Length x Width x Height

Volume = (4.16cm) (2.2cm) (2.00cm)
LAN

~~Volume = 18.304 cm^3 *(incorrect)*~~

Volume = 18 cm^3 (correct)

CODE OF ACADEMIC HONOR AND INTEGRITY

Los Angeles Mission College
Departments of Physical and Life Sciences

Students at Los Angeles Mission College, because they are members of an academic community dedicated to the achievement of excellence and the pursuit of honor, are expected to meet high standards of personal, ethical, and professional conduct. These standards require personal integrity and a commitment to honesty. Without the ability to trust in these principles, an academic community and a civil society cannot exist. Los Angeles Mission College students and faculty are as committed to the development of students with honesty and integrity as they are to the academic and professional success of its students.

The **Academic Code of Honor and Integrity** is an undertaking of the students, both individually and collectively, that they will:

1. Not give or receive unpermitted aid during exams, quizzes or assignments

2. Not give or receive unpermitted aid in assignments, reports or any other course work that is to be used by the instructor as a basis for grading.

3. Do their share and take an active part in upholding the spirit and letter of the Code of Academic Honor and Integrity.

Some examples of conduct that are regarded as being in violation of the Academic Honor Code include:

- Copying from another's examination or quiz, or allowing another to copy from one's own papers
- Using any unpermitted source of information, human or other, during an exam, quiz or assignment that influences the grade; this includes the use of technological devices
- Any student-to-student collaboration that is unpermitted
- Plagiarism (plagiarism is defined as the use, without giving reasonable and appropriate credit to, or acknowledging the author or source, of another person's original work)
- Representing as one's own work as the work of another
- Giving or receiving aid on an academic assignment under circumstances in which a reasonable person should have known that such aid is not permitted

As a part of the effort to promote and instill an environment of honesty and integrity during quizzes and examinations, the following guidelines will apply for any courses in the Departments of Physical and Life Sciences:

1. Students will leave all books and all other non-essential items (e.g. paper, electronic devices) on the floor or inside their backpacks so that they are not useable nor block the sight line between professor and student. No electronic devices will be in reach.

2. Students will not communicate in any way that will dishonorably assist themselves or another student.

3. Students will leave the room during an exam only if permitted by the professor's policy. If permitted, only one student may leave the room at any time and be gone for only the average length of time needed for the stated purpose. Students will leave all purses, bags, books, phones, jackets, etc., in the classroom during the absence.

4. Students will promote the spirit and letter of the **Code of** Academic **Honesty and Integrity** by dissuading fellow students from dishonest activity and, when such casual persuasion does not work, informing the professor of the possible dishonest activity, either anonymously, or otherwise.

5. Students will make every effort to avoid the appearance of dishonesty or lack of integrity

Violation of this policy will not be tolerated and violators will be subject to penalties. The success of the **Code of Academic Honor and Integrity** is based upon the collective desire of students, faculty and the community to live in an environment that embraces respect for that which is right – both in the college and in society as a whole.

I have read and understand the Code of Academic Honor and Integrity and will abide by both its intent and its spirit:

Name (print) _____ Signature _____ Date _____