

# PHYSICAL SCIENCE 01

Ticket Number 3401

6:50 P.M. – 10:00 P.M. Wednesdays

Room: CMS-028

**Instructor:** ..... Professor Charles Mallory

**Email:** ..... [Professor.Mallory@gmail.com](mailto: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:** ..... Wednesdays CMS 028 before class 6:20PM, Thursdays CMS 030 6:20 – 6:50 PM

**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, 12<sup>th</sup> edition

It is highly recommended that you purchase this book. Note that other editions of this book will have different questions at the end of each of the chapters which may cause you issues while studying.

**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:** ..... Several 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 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 – UPDATED APRIL 6TH

Date	Day	Chap	Material	Assignments
Feb 10, 2016	Wed	Intro	Significant Digits & Scientific Method	None
		1	<b>Measurements</b> <i>Exercises 1, 2, 3, 4, 5, 6, 17, 19, 20, 21, 22</i>	
Feb, 17, 2016	Wed	2	<b>Motion</b> <i>Exercises 7, 9, 11, 13, 18</i>	Homework Chapter 01 Due
Feb 19, 2016	Fri	<i>Last day to ADD, for a SECTION TRANSFER, to process an AUDIT</i>		
Feb 21, 2016	Sun	<i>Last day to DROP without a "W", to receive a refund (on line only)</i>		
Feb 24, 2016	Wed	3	<b>Force and Motion</b> <i>Exercises 4, 9, 21</i>	Homework Chapter 02 Due
Mar 02, 2016	Wed	4	<b>Work and Energy</b> <i>Exercises 4, 12, 15, 16, 20, 24</i>	Homework Chapter 03 Due <b>Test on Chapters 01 &amp; 02</b>
Mar 09, 2016	Wed	5	<b>Temperature and Heat</b> <i>Exercises 5, 11, 18, 21</i>	Homework Chapter 04 Due <b>Test on Chapters 03 &amp; 04</b>
Mar 16, 2016	Wed	6	<b>Waves</b> <i>Exercises 3, 7, 11, 13</i>	Homework Chapter 05 Due <b>Test on Chapter 05 questions - 30 min. max.</b>
Mar 23, 2016	Wed	7	<b>Wave Effects and Optics</b> <i>Exercises 1, 6, 15</i>	Homework Chapter 06 Due <b>Test on Chapter 06 questions - 30 min. max.</b>
Mar 30, 2016	Wed	<b>No Class – Sorry, Instructor Ill</b>		
Apr 06, 2016	Wed	<i>No Class – Spring Break</i>		
Apr 13, 2016	Wed			Homework Chapter 07 Due <b>Test on Chapter 07 questions - 30 min. max.</b>
		8	<b>Electricity and Magnetism</b> <i>Exercises 13, 19, 20</i>	
		9	<b>Atomic Physics</b> <i>Multiple Choice Questions 4, 5, 6 Fill in the Blank Questions 3, 4, 5, 7, 9 Short Answer Questions 6, 7, 9 Exercises 2</i>	Homework Chapter 08 Due <b>Test on Chapter 08 questions - 30 min. max.</b>
Apr 20, 2016	Wed	10	<b>Nuclear Physics</b> <i>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</i>	Homework Chapter 09 Due <b>Test on Chapter 09 questions - 30 min. max.</b>
Apr 27, 2016-	Wed	11	<b>The Chemical Elements</b> <i>Matching i, j Multiple Choice Questions 6, 11 Short Answer Questions 3, 6, 19 Exercises 1, 2, 17, 18</i>	Homework Chapter 10 Due <b>Test on Chapter 10 questions - 30 min. max.</b>
May 04, 2016	Wed	12	<b>Chemical Bonding</b> <i>Multiple Choice Questions 4, 6, 7, Fill in the Blank Questions 7, 8, 11</i>	Homework Chapter 11 Due <b>Test on Chapter 11 questions - 30 min. max.</b>
May 08, 2016	Sun	<i>Last day to DROP with a "W" (on line only)</i>		
May 11, 2016	Wed	13	<b>Chemical Reactions</b> <i>Exercises 1, 2</i>	Homework Chapter 12 Due <b>Test on Chapter 12 questions - 30 min. max.</b>
May 18, 2016	Wed	--	<b>Astronomy</b>	Homework Chapter 13 Due <b>Test on Chapter 13 questions - 30 min. max.</b>
May 25, 2016	Wed	--	<b>Astronomy</b>	Test on Astronomy
Jun 01, 2016	Wed	<b>Final 8:00PM - 10:00PM</b>		

# PERIODIC TABLE OF THE ELEMENTS

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

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

# SIGNIFICANT FIGURES

1 All non-zero digits are significant

Example	Sig. Digits	Sci-Notation
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

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The **Least Accurate Number (LAN)** 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 decimal point 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
<hr/>	
<del>215.98</del>	<del>g (incorrect)</del>
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.

$$\text{Volume} = \text{Length} \times \text{Width} \times \text{Height}$$

$$\text{Volume} = (4.16\text{cm}) (2.2\text{cm}) (2.00\text{cm})$$

LAN

$$\text{Volume} = 18.304 \text{ cm}^3 \text{ (incorrect)}$$

$$\text{Volume} = 18 \text{ cm}^3 \text{ (correct)}$$

# 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 \_\_\_\_\_