



ORANGE
COUNTY
COMMUNITY
COLLEGE

• State University of New York

Department of Science & Engineering

**Physical Science -
The Physical World
37*125
Fall - 2006**

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37*125 FALL 2006

37125 - Physical Science: The Physical World

2 lect., 2 lab., 3 cr. (Fall)

Topics are drawn from the fields of Physics, Chemistry, Geology, Meteorology and Astronomy with emphasis on how the scientific method guides the various disciplines. Laboratory work enhances and develops the lecture material. Course formerly numbered 37103.

TEXT AND MATERIALS

This course will cover selected material presented in the 24 chapters of the text: Faughn, Chang and Turk, Physical Science Second Edition (New York: Saunders, 2002) [ISBN 0-03-001112-4]. The student will need a scientific calculator. Laboratory materials will be distributed throughout the semester.

RELATIONSHIP TO PROGRAMS

Physical Science: The Physical World (35103) is specifically designed for the liberal arts major, seeking scientific literacy and a better understanding of contemporary scientific issues. It fulfills the SUNY General Education core requirement for a laboratory-based course in the Natural Sciences, as well as the Math/Science requirement of the general A.A. and A.S. degrees. However student with a rigorous high school science background should consider taking General Physics 35101-2 or General Chemistry 34105-6 for the Natural Science requirement. If in doubt about the proper course to take, consult with your advisor or with the department chair.

RELATIONSHIP TO LIFE !

Physical Science: Most students across the nation take this course for a very profound reason -- they have to! There is a General Education-Laboratory Science course requirement to be fulfilled in most college curricula, and this course is as good a course as any to fulfill it. Well, now that cruel fate has brought us together, what will our attitudes be as we ride the rapids? Why not decide to enjoy it? That's right. Simply decide to enjoy it. This course is chock full of interesting stuff and it will exercise sections of your brain that have been out sunbathing for a while. Now sunbathing can be a delight (in moderation) but so can the experience of reading a news report about some scientific issue or recent discovery and actually understanding the issues. Further, it will be a great joy for you on graduation day to be leaving Orange as a well rounded, educated human being, capable of developing informed opinions on crucial topics. This course can contribute to that end.

LEARNING OBJECTIVES AND OUTCOMES

In order to be successful in most courses (and in life itself) it is crucial that we both **show up** and do the assigned work. Otherwise, we are both wasting our time. To discourage such time-wasting, the following guidelines will apply for this course.

1. Since the unexpected can happen, two absences from class (one absence in an evening section) will only carry the consequence of you missing the material on that day and having to make it up on your own. This can have a significant effect on your grade, but it is not automatic.
 2. On the next absence you are declaring that the maximum grade you might expect in the course is a C, regardless of performance on exams. It's a steep downhill from there, in that the following absence brings a maximum grade of D and the one after that a maximum grade of F.
 3. Each missed assignment (a late is a miss), after one "mulligan" takes four points off of the twenty points allocated to the homework submission. Five missed assignments means this 20% for the course is used up and your final grade will probably be an F.
- * Note: Leaving class early counts as an absence. Again, I remind you that perfect attendance is assumed. The "mulligans" mentioned above are there to handle the unexpected (illness, etc). They do not constitute an "awards program!"

SUPPORT SERVICES

Tutoring services are available in the Library. Peer Tutoring is always available in the Mathematics/Science tutoring center in Harriman 311 Also, get to know your advisor on a personal level. If you have a documented disability and anticipate needing special accommodations in this course, please contact the Office of Disability Services located on the 3rd floor of the College Commons, (845) 341-4077, follow their guidelines regarding submitting documentation and bring your official Accommodation Notice to me as soon as possible.

NOTES:

NOTE REGARDING CLASS SYLLABUS

The following daily lecture schedule should be viewed as tentative to the extent that some adjustments may seem advisable as the course progresses. Any and all such adjustments will be discussed in class so that there are no surprises.

Physical Science -- The Physical World Topic Outline Fall 2002

The assigned time per topic is somewhat tentative, as some adjustments as to time allocation might seem advisable during the semester. In such an eventuality the students, as mentioned above, will be notified well ahead of time.

WEEK	TOPIC	CHAPTER
1	Systems of Measurement	1.1 -- 1.5
2	Early Ideas about Motion	2.1 -- 2.9
3	Isaac Newton's Revolution	2.10 -- 2.17
4	The Great Conservation Laws	3.1 -- 3.7
5	Friction and Mechanical Systems	3.8 -- 3.12
6	The Gravity of Gravity	4.1 to 1.8
7	Temperature and Heat in the Universe	5.1 to 6.9
8	Waves in the Physical Universe	7.1 to 7.11
9	The Electrical Revolution	8.1 to 9.10
10	Light and Astronomy	10.1 to 11.9
11	The Atom and the Nucleus	12.1 to 13.8
12	Mr. Einstein and Relativity	14.1 -- 14.15
13	Let's Chemical Bond.	15.1 to 16.7
14	The Solar System & Beyond.	21.10 to 22.12
15	The Life and Death of the Universe	23.1 to 24.4

The laboratory exercises for the course will be taken from the following list. The choice of the actual laboratory experience will depend on the progress of the course at that time.

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| Measurement/Units | Radioactivity |
| Scientific Arithmetic/Calculators | The Celestial Sphere |
| Galileo and Motion | The Motion of the Earth and the Moon |
| A Little Math -- Vectors | Classifying Stars |
| Velocity and Acceleration | Electrical Circuits |
| Newton's Forces | Lenses and Images |
| Friction and the Real World | |
| Momentum & Conservation | |
| Energy and Conservation | |
| Simple Machines | |
| Simple Pendulum and Gravity | |
| The Heat of Fusion and Phase Changes | |
| Thermal Expansion | |
| Sound Wave | |

ASSIGNMENTS

WEEK	TOPIC	CHAPTER
1	# 4,10,11,12,17,19,24,30	1.1 -- 1.5
2	# 5,7,11,12,15,20,27,30	2.1 -- 2.9
3	# 59,61,62,66,67,68,71,76	2.10 -- 2.17
4	# 4,8,9,10,15,22,29	3.1 -- 3.7
5	# 31,36,39,48,50	3.8 -- 3.12
6	#2,13,16,22,26	4.1 to 1.8
7	#7,8,10,13,15,21,26	5.1 to 5.11
8	# 4,6,14,15,25,26	7.1 to 7.11
9	# 14,15,19,20,33,41,42	8.1 to 9.10
10	# 1,3,4,13, // 11,12,18	10.1 to 11.9
11	# 11,13,14,15,16,17,24	12.1 to 13.8
12	# 2,3,19,20,22,23,33,34	14.1 -- 14.15
13	# 8,18,20 // 10,11,13,14	15.1 to 16.7
14	# 3 8,9,14,22,23 // 5,8,9,31	21.10 to 22.12
15	# 5,6,8,9,13,16 // 1,4,6,18	23.1 to 24.4