

Fridays, from 8:30 to 11:40 AM
Room: K-104, Mesa College
Fall 2009
San Diego Mesa College

Instructor: C. Magdalena Gramada
Mailbox: K-202
Email: mgramada@sdccd.edu
<http://homework.sdmesa.edu/mgramada>

PHYSICAL SCIENCE 101, CRN: 06369

COURSE TITLE: SURVEY OF PHYSICAL SCIENCE LABORATORY (3 hour lab, 1 unit)

DESCRIPTION OF COURSE: This one-semester course with one unit of academic credit supplements Physical Science 100 course, and is intended to provide laboratory experience. Class meets for three hours every week (except for holidays) during the 16-week semester.

PREREQUISITES AND COREQUISITES ADVISORY: Physical Science 100, English 42 with a grade of C or better, or equivalent, or Assessment Skill Level R4; and Mathematics 32, with a grade of C or better, or equivalent, or Assessment Skill Level M20.

COURSE OBJECTIVES: It is intended to get you, the student, interested in learning and discussing about the natural world as an entity. As a blend of physics, chemistry, astronomy, and earth science experiments, this course provides the hands-on lab experience and better understanding of the relationships among physical sciences. Upon successful completion of this course, students will be able to:

1. Demonstrate some proficiency in the operation of laboratory or demonstration equipment designed for laboratory experiments or exercises in physics, chemistry, astronomy, geology, and/or meteorology.
2. Make physical measurements with a precision limited by the laboratory equipment in use and by any physiological constraints (such as imperfect eyesight) student may have.
3. Express measurements or other data in tabular and graphical form.
4. Analyze the data given or obtained by experiment, and formulate a reasonable explanation for the phenomenon or process being considered or observed.
5. Submit neatly prepared laboratory reports.
6. Demonstrate, in the form of successfully written lab reports, a basic understanding of some of the typical laws and principles and the common processes associated with the sciences of physics, chemistry, astronomy, geology, and/or meteorology.
7. Enlarge vocabulary and understanding of the scientific terminology.
8. Work as a member of a partnership or team to complete assignments.

COURSE CONTENT: Laboratory experiments that are taken from major areas of the physical sciences: physics, chemistry, astronomy, and earth science. The following topics are included in the framework of the course but are not intended as limits on content.

- 1) Introduction to measurement and the scientific method. Error analysis.
- 2) Physics
 - a. Motion
 - b. Universal gravitation
 - c. Momentum, work, and energy
 - d. Wave motion: sound and electromagnetic waves.
 - e. Basic electricity, magnetism, and optic phenomena.

- 3) Chemistry
 - a. Atomic structure and the periodic table
 - b. Chemical bonding, molecules, and molecular structure
 - c. Solutions and solubility.

- 4) Astronomy
 - a. The solar system, the sun and the stars
 - b. Altitude-Azimuth coordinates and Moon phases.

- 5) Earth Sciences
 - a. The lithosphere – the earth's crust and interior, geological models, and basic seismology
 - b. The atmosphere – weather and climates
 - c. The hydrosphere – seas and oceans
 - d. The ecosphere

METHODS OF EVALUATION AND GENERAL INFORMATION

Exam and Grading

Your final course grade will be determined by your overall results at the midterm and final exam, and the lab reports, with the following weights:

Lab Reports Combined → 40 % of the final grade
Midterm and Final Exam → 60 % of the final grade

The grading scale will be as follows:

90 to 100 % → A
80 to 89 % → B
70 to 79 % → C
51 to 69% → D
Under 51% → F

There will be no make-up labs. The lab reports are due at the *beginning* of the next class meeting.

The final grade in this class will be affected by attendance, since missed labs count as zero points.

Just one, the lowest score on all labs will be dropped.

Please save this one excused absence for potential family emergencies, or illnesses.

Policy regarding late/incomplete work

All lab reports are due at the *beginning* of each following lab meeting (for example, if you perform the lab on September 4, 2009, then the lab report associated with it is due on September 11, 2009.)

Late lab reports will be accepted for full credit on the day following their due date only under extreme circumstances, such as family death, illness, accidents, and only after you emailed me in advance about the incident and have received my permission. Not having time to complete the assignment is not an excuse for turning in late work. Late lab reports, **for which you have had my prior approval**, will be accepted up until next day with a 20 % deduction of grade.

If you are not able to make it to class to turn in your lab report, then send me an email and explain the situation. Also, leave your lab report that is due that specific day to be turned in by one of your trusted classmates whom you know will for sure attend, or even better, **drop it in my mailbox in K-202.**

Required Materials

Access to a personal computer with reliable Internet connection **is mandatory**, since all lab reports, notes, information and updates are available from <http://homework.sdmesa.edu/mgramada> If you do not own a PC, then the Learning Resource Center (4th floor) gives you free access to one, but you are supposed to pay for the print-outs. As an alternative, you can use the K-401 Computer Application Labs. There you can get access to the Internet and print out the lab reports required to work on during labs. Check the schedule and availability for those rooms, so that you can get the most recent version of the laboratory assignments.

You will need *a scientific calculator* (nothing fancy- it can be purchased for about \$15-\$20). Please have it with you to every lab because you will need it for solving the lab exercises.

Attendance and Add/Drop Policy

Attendance is very important for this course, especially because *there are no make-up labs*. It is the *student's responsibility* to add, drop, or withdraw from classes before the deadlines stated in the course schedule. By district policy, you may be dropped from class if you miss the first day, and you must be dropped from class if you have accumulated unexcused absences in excess of 12% of total class hours. Students with excessive unexcused absences run the risk of being dropped from the class up until the **drop deadline (September 4, 2009)**. There are 15 days of instruction, so to miss 12 % would be to miss 2-3 days of class. Please contact me ASAP if you have attendance problems: send me an e-mail at mgramada@sdccd.edu , or leave me a message in the mailroom, K-202. If you decide **to withdraw** yourself from class, then remember to do it by **October 30, 2009**; otherwise a letter grade (A through F) must be issued to you.

Petitions to add, drop, or withdraw after the deadline will not be approved without proof of circumstances beyond the student's control, which made him/her unable to meet the deadline. Lack of money to pay fees is not considered an extenuating circumstance. Students anticipating difficulty in paying fees before the add deadline should check with the Financial Aid Office about sources of funds or other alternatives for which they may be eligible.

Classroom behavior – You are expected to respect and obey standards of student conduct while in class and on the campus. The student Code of Conduct, disciplinary procedure, and student due process (**Policy 3100** and Procedures 3100.1 and 3100.2) can be found in the Mesa College catalogue, and student handbook.

This class will be conducted in accordance with the college student code of conduct and basic standards of academic policy. Cheating, plagiarism, and other forms of academic dishonesty are not acceptable and will not be tolerated. Violations of standards of academic honesty will be reported to the college disciplinary office for appropriate action.

You are expected to arrive on time to class. Important information is given at the start of class. If you arrive 10 minutes after the beginning of the lab, you will still be allowed to stay in class, but you will not receive any credit for that specific day, even if you do the experiments and prepare the lab reports. Attendance is mandatory, and you are expected to be on time at every lab. You are not allowed to bring food or drinks into the classroom. Please do not engage in side conversations during class or use radios, pagers, cell phones, or other devices that divert your attention and the attention of others in the class. It is my aim to further an atmosphere conducive to learning in the classroom, so if you are bothered by any chronic disruptive activities in class, please come and see me about it so that I can take the appropriate action to remedy the situation.

Laboratory Safety Procedures:

1. Never perform any experiments that have not been authorized by the instructor. Treat the lab as a place for serious work. More than this, treat this lab at least as well as you treat your daily job.
2. Learn the location and proper use of emergency of any equipment including fire extinguishers, eye washers, safety showers, and fume hood.

3. Smoking, gum chewing, eating, and drinking are not permitted in the lab.
4. At the beginning of the course, inform your instructor of any known allergies or sensitivities so that any necessary special arrangements may be made.
5. Report any accidents, injuries, or improperly functioning equipment to the instructor.
6. Wear safety goggles at all times when chemicals or flames are being used by anyone in the lab.
7. Wear only shoes that cover the top of the foot.
8. Keep your workspace clear of all unnecessary materials. Papers and books (other than your lab manual) as well as sweaters or coats and backpacks should not be kept on the lab bench or on the floor around your work area.
9. Never put anything from the lab into your mouth. Never remove any chemicals from the lab.
10. Do not put broken glass, matches, or solids down the drain.
11. Never leave a lighted Bunsen burner unattended.
12. Sweep up any broken glass or dispose it properly, based on your instructor's advice. Do not place it in the garbage can.
13. Clean up your work area at the end of each lab.

Accommodation of Disability – If you have a disability and need academic accommodations, please notify me as soon as possible. For students who are having trouble understanding spoken English and wish to improve their skills, there are several wonderful programs available to you on a walk-in walk-out basis. The Mesa College Continuing Education Program offers "Pronunciation and Accent Reduction" classes. These classes are located very close to Mesa College. For more information, please call West City Center at (619) 221-6974.

Note about student retention – It is Mesa College's policy to encourage learning through student retention. Therefore, if you are considering dropping this course after you have invested some time in it, please consult with me after class.

Important Dates:

September 4, 2009 - Last day to drop/receive an add code issued by the instructor

October 30, 2009 - Withdrawal deadline

October 16, 2009 - Midterm Exam

December 18, 2009 - Final Exam

Important Information:

It is the student's responsibility to drop all classes in which he/she is no longer attending (for on campus classes). It is the instructor's discretion to withdraw a student after the add/drop deadline (**September 4, 2009**) due to excessive absences.

Students who remain enrolled in a class beyond the published withdrawal deadline, as stated in the class schedule, will receive an evaluative letter grade in this class.

Note: Important deadlines, outline of course, syllabus, assignments, and updated information for laboratory are included in the PHYN 101 website which can be accessed at <http://homework.sdmesa.edu/mgramada>. Please check it frequently for last moment changes and updates. Besides the time we will spend together in class, this website will be our interface in exchanging knowledge and information, and in learning from each other.