

GENERAL GEOLOGY LABORATORY – COURSE# 91070**3 Laboratory Hours, 1 Unit Letter Grade, Student may petition for Credit/No Credit**

PREREQUISITES ADVISORY: Completion of GEOL 100 and ENGL 056, with a grade of "C" or better, or equivalent, or Assessment Skill Level R5.

MEETING TIME/PLACE: August 24 to December 14 – Fridays 9:00am - 12:10pm - Room S6205

INSTRUCTOR: Ray Rector

CONTACT: phone# -760-942-9201, e-mail – geoprof@geoscirocks.com

OFFICE HOURS: Fridays 12:15 pm to 1:15 pm – Room S6205

CLASSROOM WEB SITE: <http://www.geoscirocks.com/> Click the “Mesa Geo101 Lab” link

OPTIONAL TEXT: Laboratory Manual in Physical Geology - 9th Edition

Editors: AGI and NAGT; 9th Edition: ISBN10: 032168957

IMPORTANT NOTE: a free, in-lab, loaner copy of the laboratory manual will be available for use for every student during lab time, but cannot be taken out of the lab room. This lab manual is not sold in the campus bookstore. However, you can purchase this lab manual used online.

COURSE DESCRIPTION: This laboratory course covers plate tectonics, mineral and rock identification, landforms, topographic/ geologic map interpretation, and geologic structures. The course is designed to supplement Geology 100 with laboratory experience. (FT). Associate Degree Credit & transfer to CSU and/or private colleges and universities. UC Transfer Course List. CAN GEOL 2 = GEOL 100 + GEOL 101 (City, Mesa, Miramar).

STUDENT LEARNING OUTCOME: Survey of Rocks and Minerals: Correctly classify a set of twelve hand-specimen rocks into the 3 major rock groups and correctly identify the most abundant mineral in each sample.

STUDENT LEARNING OBJECTIVES: Upon completion of this course, students should be able to:

- 1) Understand the methods and limitations of scientific investigations of the Earth;
- 2) Distinguish between science and pseudo science;
- 3) Identify, name, and classify the most common minerals and rock types;
- 4) Apply stratigraphic principles to determine the age sequence of a set of rocks layers;
- 5) Read and interpret topographic maps for point location, point-to-point direction, topographic relief and slope, and recognizing topographic features such as peaks, basins, ridges and valleys;
- 6) Describe and classify the various types of folds and faults, and explain their origin in terms of crustal forces and plate tectonic processes;
- 7) Locate, describe and classify the global-scale crustal features of Earth, and explain the origin of those structures in terms of plate tectonic principles and processes;
- 8) List and describe the major types of geologic hazards, and explain both their origin and means of hazard mitigation.

ACCOMMODATION OF DISABILITY: A student with a verified disability may be entitled to appropriate academic accommodations, including the assistance of a note-taker in the classroom, and/or extended time for taking exams. Students with disabilities who may need academic accommodations should notify their professor immediately. For further information, please contact Disability Support Program and Services (DSPS).

CLASS ENROLLMENT NOTES: It is the student’s responsibility to add, drop, or withdraw from classes before the deadlines stated in the class schedule. Petitions to add, drop, or withdraw after the deadline will not be approved without written proof of circumstances beyond the student’s control, which made her/him 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 deadline should check with the Financial Aid Office about sources of funds or other alternatives for which they may be eligible. If you decide to withdraw from this

course, you are reminded to do so before the **August 31th (last day to withdraw without a “W”)**; and the **October 26th (last day to withdraw with a “W”)**. If you fail to withdraw by 10/26/18 and you stop participating in class, then a final grade must be assigned to you. It is the student’s responsibility to drop all classes in which he/she is no longer participating (for online classes). It is the student’s responsibility to drop all classes in which he/she is no longer attending (for on campus classes). It is at the instructor’s discretion to withdraw a student before the add/drop deadline (10/26/18) due to excessive absences (missing 3 or more labs). 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. The deadline to file a petition for PASS/NO PASS grade option is the 9/21/18.

STATEMENT OF RETENTION: Students, please discuss your plans to withdraw from class with your instructors. They may have options for you that may allow you to continue in class.

INSTRUCTOR’S ATTENDANCE AND ENROLLMENT POLICY: Attendance is critical to teaching and learning in this lab class, and it is mandatory. You will most likely fall behind in acquiring course content, vocabulary, concepts, and skills if you do not attend class regularly. I realize that situations can arise that are beyond your control, which could interfere with attending this class. Attendance is taken every class meeting by means of a sign-up sheet that will be passed around at the beginning of each class. You are required to attend the entire scheduled lab meeting, unless I excuse you early.

A student may be dropped from this course for excessive absences (exceeding 3 missed course meetings). Attendance is taken every class meeting by means of a sign-up sheet that will be passed around at the beginning of each class. Note that it is your responsibility to sign it on the attendance sign-in sheet during each class meeting in order to receive attendance credit for that class meeting.

It will be up to you for staying up with lab assignments and exams. Make sure and consult the schedule, lab manual, class notes, classroom website, and fellow classmates about the material that was missed during absences. There is no make-up or rescheduling of either labs or lab exams unless the student provides proof of some compelling reason for the make-up. It is the student’s responsibility to contact me to forewarn me of any problem in either, attending the regular-scheduled labs and exams, or completing the lab write-ups by the due date. Business, pleasure, or being generally ill, is not a compelling reason - being horribly sick, or having a death in the family is.

CLASSROOM BEHAVIOR AND STUDENT CODE OF CONDUCT: Students are expected to respect and obey standards of student conduct while in class and on campus. The student Code of Conduct, disciplinary procedure, and student due process (Policy 3100) can be found at the Office of the Vice President of Student Services. Charges of misconduct and disciplinary sanctions may be imposed upon students who violate these standards of conduct or provisions of college regulations. As your instructor, I have the following expectations of your behavior in this class:

- 1) Promote a positive learning environment by exhibiting mutual respect and consideration of the feelings, ideas, and contributions of others.
- 2) Demonstrate a genuine desire to learn, interact, and improve.
- 3) Demonstrate respect for furniture, tools, equipment, and supplies in the classroom.
- 4) Clean up after yourself.
- 5) No eating in class – drinks are OK, but must be stored in sealable containers.
- 6) All cell phones, pagers, and audio players must remain turned off, or in silent mode. Active use of a cell phone or audio player in the classroom during class time is prohibited.
- 7) This class will be conducted in accordance with the college code of student conduct and basic standards of academic honesty. Cheating, plagiarism, or other forms of academic dishonesty are totally unacceptable and will not be tolerated. Violations of standards of academic honesty will be reported to the school dean for appropriate action. A full explanation of my plagiarism policy is found on the classroom website.

LABORATORY SAFETY RULES: The following safety rules must be followed at all times while in lab:

- 1) No food or any sort of drink in the lab allowed in lab at any time. Drinks can be stored outside of lab.
- 2) Everyone **must** wear closed-toed shoes while in lab – no exceptions. Any student who shows up without closed-toed shoes on will not get credit for that days laboratory work.
- 3) Any/all lab accidents, injuries, or unsafe medical/health conditions/events – however minor – must be reported to the lab instructor immediately.
- 4) Only authorized lab experiments or procedures can be preformed. All authorized experiments or procedures must be performed as described and/or demonstrated by the laboratory instructor.
- 5) Personal belongings need to be stored in a place that will not impede students' movement in and around the lab, nor clutter lab table space.
- 6) Horseplay, running, or other potentially unsafe activities while in lab is strictly forbidden.
- 7) When the fire alarm goes off, everyone must leave the lab room immediately - in a calm orderly fashion - to the designated outside emergency assembly area. Know where the assembly area is located.
- 8) When using liquid 1% hydrochloric acid for acid testing mineral and rock samples, use only a small amount (1 drop) of acid, and be careful to not to get the acid on your skin or clothing. After the acid test is finished, samples must be wiped dry with a paper towel. When not in use, acid testing bottles must be stored in their proper acid bottle caddy. Safety goggles **MUST** always be worn when handling the acid.
- 9) Be very careful when handling and transporting rock and mineral hand samples. Mineral and rock hand samples can be heavy and/or have potentially sharp edges. The potential for dropping a sample on the foot or cutting oneself on a sample is there.
- 10) When performing hardness tests on mineral and rock samples, students must be very careful not to jab/prick themselves when using sharp testing items, like nails or knives. Also, when using a glass or porcelain plate during hardness testing, make sure that the plate is held down on the lab table, and not held in your hand while performing the scratch test.

GRADING/EVALUATION:

- I. 14 Laboratory Assignments – 30 points each
- II. Mandatory fieldtrips conducted in the field during normal lab date and time
- III. Mid-term and Final Exams - 150 points each
- IV. Late lab assignments are not accepted – no exceptions.
- V. Missed labs due to absence receive zero points. No post-lab make-ups allowed.
- VI. **One** of the 14 laboratory assignment grades (**lowest grade**) will be **thrown out**.
Note that the mandatory fieldtrip or exam preparatory labs cannot be thrown out.
- VII. Voluntary field trip extra credit not to exceed 40 points
- VIII. Total points used to calculate grade = 690 points
- IX. Final course grade is based purely on total earned points divided by possible total points.
- X. **Grading Scale:** 100% – 90% = A
89% -- 80% = B
79% -- 70% = C
69% -- 55% = D
< 55% = F

REQUIRED LAB MATERIALS: *The following are required lab supplies (by second class meeting) that you will need for all labs during the semester: , #2 pencils with erasers, calculator, and a clipboard (recommended) for field trips. Please, use only a pencil in lab!* NOTE: a free copy of the laboratory manual will be available to every student for use during lab time, but cannot be taken out of the lab room.

Laboratory Worksheet Sets: Students are **required** to make a printed hardcopy of each week's lab worksheet set PRIOR to the scheduled lab meeting day, and bring that with you to the lab. Download the

worksheets at: www.geoscirocks.com/index_mesa.html. **Note** that most labs have a written PRELAB activity (included in the lab worksheet) that must be completed PRIOR to the lab start time. Also note that it is advised to print out a color copy if there are colored pages.

LAB PROCEDURES:

I. Before the Lab: You must be prepared prior to coming to each geology lab.

- 1) Print Out and Read (several times) the lab exercise worksheet, and the corresponding chapter in the lab text manual.
- 2) Do the **Pre-lab** exercises (if applicable) before you come to class. Pre-labs are checked off by the instructor at the **beginning** of the lab meeting for credit.
- 3) I strongly encourage you to wear closed-toed shoes to the mineral and rock labs.

II. During the Lab: A brief lecture about the lab by the instructor will help to explain some of the activities that you will complete in the lab. Additionally, make note of the following 6 points:

- 1) Be prepared by reading the lab and becoming familiar with it before we start.
- 2) Do not disrupt other lab groups by excessive off-topic talking, socializing, etc.
- 3) You may work with lab partners in groups of up to 3 or 4 (not any larger groups, please).
- 4) You must have your own lab notebook and worksheet, no sharing.
- 5) You may not split labs among lab partners and recombine the parts later. In other words, you must complete the entire lab as a group.
- 6) Please turn off your cell phone unless you are expecting an emergency.

III. At the End of the Lab: When your group has completed the lab exercise, turn in your completed, properly COLLATED and STAPLED lab WITH your *written reflection*. Points will be deducted for being disruptive, coming to lab late, or incomplete and/or unsatisfactory work.

REQUIRED GEOLOGY LABORATORY HAND-IN WORK

Students should obtain a 3-ring binder notebook to compile your laboratory coursework for exam study and safe-keeping, which will include the following work for each week's lab:

1) Your **completed lab worksheets** for that week's exercise. (27 points possible)

2) **A written summary/reflection** (120 word minimum) of the lab activity, explaining its purpose, the methods used, the results obtained, and a brief personal reflection of what you enjoyed and learned about doing this lab (3 points possible). Answer the following 3-point question reflection set for EVERY single lab meeting, including the fieldtrips:

- 1) *What did you actually discover and learn during this lab? Was the lab's purpose achieved?*
- 2) *What was best about this lab? What you enjoyed most about this lab?*
- 3) *What was worst about this lab? What was challenging or thought-provoking?*

VOLUNTARY WEEKEND FIELD TRIPS: Five weekend field trips are planned for the semester. Field trips earn extra credit and are totally voluntary!

- 1) Weekend field trip: Saturday September 8 – Torrey Pines Beach, 2:00 pm
- 2) Weekend field trip: Sunday October 7 – Blacks Beach, 10:00 am
- 3) Weekend field trip: Saturday October 20 – Moonlight Beach, 10:00 am
- 4) Weekend field trip: Sunday November 11 – Birch Aquarium, 9:00 am

5) Weekend overnight fieldtrip: Saturday/Sunday December 1/2 - Joshua Tree National Park

Notes: Check the professor's classroom web page for fieldtrip details

- Extra credit and/or excessive absence make-up will be awarded for participating on these trips.
 - Experience gained on fieldtrips greatly helps in understanding the text and lecture material.
 - Field trips are fun and a great way to better know your classmates and instructor.
 - Note that if you cannot attend an in-person fieldtrip, then you can do a virtual fieldtrip option
- Earn up to 10 points per fieldtrip (J-Tree trip = 35 pts). Earn up to 5 points per each virtual fieldtrip.

Miramar Geology 101 Friday Laboratory Schedule - Fall 2018

Date	Class Meeting Lecture and Discussion Topics	<u>Location and Time</u>
F 8/24	LAB 1 - Scientific Method – <i>Observe, Measure, Test</i>	S6205 @ 9:00 am
F 8/31	LAB 2 - Isostasy and Plate Tectonics	S6205 @ 9:00 am
F 9/7	LAB 3 – Minerals I - <i>Classification and Properties</i>	S6205 @ 9:00 am
Sat 9/8	Voluntary Weekend Fieldtrip – <i>Torrey Pines Beach - Coastal Rocks</i>	Torrey Pines Beach @ 2 pm See Website for Details
F 9/14	LAB 4 – Minerals II - <i>Identification of Unknown Minerals Samples</i>	S6205 @ 9:00 am
F 9/21	LAB 5 - Igneous Rocks – <i>Volcanic and Plutonic Rocks</i>	S6205 @ 9:00 am
F 9/28	LAB 6 – Sedimentary Rocks - <i>Classification, Properties, & ID</i>	S6205 @ 9:00 am
F 10/5	LAB 7 - Metamorphic Rocks - <i>Classification, Properties, & ID</i> <i>Midterm Exam Review</i>	S6205 @ 9:00 am
Sun 10/7	Voluntary Weekend Fieldtrip - <i>Blacks Beach - Waves and Beaches</i>	Blacks Beach @ 10 am See Website for Details
F 10/12	LAB 8 - Geology Fieldtrip OR Midterm Exam Preparation <i>Midterm Exam Review</i>	S6205 @ 9:00 am or Scripps Beach @ 9:20am
F 10/19	Midterm Exam - <i>Isostasy, Tectonics, Minerals, and Rocks</i>	S6205 @ 9:00 am
Sat 10/20	Voluntary Weekend Fieldtrip - <i>Shoreline Processes</i>	Moonlight Beach @ 10 am See Website for Details

F 10/26	LAB 9 – Geologic Dating - <i>Stratigraphic Principles and Fossils</i>	S6205 @ 9:00 am
F 11/2	LAB 10 - Earthquakes - <i>Concepts, Measuring, and Hazards</i>	S6205 @ 9:00 am
F 11/9	LAB 11 - Topographic Maps - <i>Concepts, Skills, and Uses</i>	S6205 @ 9:00 am
Sun 11/11	Voluntary Weekend Fieldtrip - Birch Aquarium - Marine Life	Birch Aquarium @ 9 am See Website for Details
F 11/16	LAB 12 – Structural Geology – <i>Identifying Folds and Faults</i>	S6205 @ 9:00 am
F 11/23	Thanksgiving Week – Giving Thanks for Everything	No Meeting
F 11/30	LAB 13 – Geology Maps – <i>Interpreting Geologic Maps</i>	S6205 @ 9:00 am
Sat 12/1 and/or Sun 12/2	Voluntary Overnight Desert Fieldtrip at Joshua Tree National Park Theme: <i>San Andreas Fault and Joshua Tree Geology & Tectonics</i>	Check Website for Details
F 12/7	LAB 14 - Geology Fieldtrip OR Final Exam Prep / Review <i>Final Exam Review</i>	S6205 @ 9:00 am or Tourmaline Beach @ 9:20am
F 12/14	Final Exam – <i>Dating, EQ's, Structure & Geology Maps</i>	S6205 @ 9:00 am

Please Note: This schedule is tentative and may be changed or modified by the instructor at anytime during the semester. Students will be notified in a timely basis if changes are made.

Notes: