

# GEY116-601 CRN 23710 GEOLOGY OF MINERALS AND GEMS

## Fall 2019 Syllabus

### CONTACT INFORMATION

**Instructor:** Dr. Libby Prueher

**Office:** none

**Office Hours:** I am available before and after class, by appointment, and by email. I am available to meet in room 2571, the room next door to the classroom.

**Phone:** 720-260-0350 (for emergencies only)

**Email:** [libby.prueher@rrcc.edu](mailto:libby.prueher@rrcc.edu) (Please send from your RRCC account and please do not use the email link on D2L.)

### COURSE INFORMATION:

**Class Dates:** September 28, October 5 and 12, 2019

**Meeting Days:** Saturday

**Start and End Times:** 8:00 am - 12:40 pm

### REQUIRED TEXTBOOK/COURSE MATERIALS

Rock and Gem: The Definitive Guide to Rocks, Minerals, Gemstones, and Fossils by Ronald Bonewitz.

ISBN 978-0-7566-3342-4

Other Course Materials: In addition to the required text above, a recent edition of any Physical Geology textbook or lab manual would also be useful as a reference. Some handouts of written materials will be provided for your use during class, and other references will be available on D2L. You will need a pencil, eraser, and notepaper.

### COURSE DESCRIPTION:

Introduces information on the definition, formation, classification, and identification of minerals and gems, as well as their economic uses and well-known Colorado examples.

Credit hours: 1

### COURSE PREREQUISITE/CO-REQUISITES

None

### COURSE LEARNING OUTCOMES

1. Define what minerals and gems are.
2. Explain some of the main ways in which minerals and gems form.
3. Describe how minerals are classified.
4. Identify common minerals using physical and some optical properties.
5. Demonstrate a basic understanding of crystalline structures and growth habits.
6. Recognize well-known gemstone types.
7. Give examples of some of the economic uses of minerals and gems.
8. Identify significant Colorado locations for collecting and/or mining minerals and gems.

## TOPICAL OUTLINE

- I. Definitions: mineral and gem
- II. Formation of minerals and gems
  - a. Igneous processes
  - b. Metamorphic processes
  - c. Sedimentary processes
  - d. Hydrothermal processes
  - e. Organic processes (gemstones only)
- III. Mineral classification
  - a. Chemical classification categories
  - b. Crystalline structure categories
- IV. Mineral Identification
  - a. Color and streak
  - b. Luster
  - c. Hardness
  - d. Fracture and cleavage
  - e. Crystal form
  - f. Density
  - g. Special properties such as taste, smell, fluorescence, radioactivity, magnetism, and acid reaction
- V. Growth and description of crystals
  - a. Crystalline structures/forms
  - b. Growth habits
- VI. Well-known gemstone types
  - a. Descriptions
  - b. Occurrence
- VII. Economic uses of minerals and gems
- VIII. Significant Colorado minerals and gems
  - a. Locations and geologic processes
  - b. Collecting
  - c. Mining

## COURSE REQUIREMENTS / EXPECTATIONS

1. Required Materials: Bring your textbook, a notebook, calculator, pencils, and an eraser with you TO EVERY CLASS MEETING. Other supplies necessary for the completion of lab exercises will be provided.
2. Attend each class session.
3. Come to class on time. Announcements are often made at the beginning of class.
4. Spend time outside of class on readings and assignments. In general, a student should plan to spend 2-3 hours outside of class for each hour spent in class in order to do well.
5. A lot of class time will involve hands-on practice with mineral and gem identification.
6. On **Saturday, September 28**, we will take a 30-minute field trip to look at rocks and minerals on the Red Rocks campus. We will also have a two - hour field trip on **Saturday, October 5** to see examples of minerals and gems at the Colorado School of Mines Geology Museum. All students must sign a waiver prior to the field trip, and carpooling is strongly encouraged. Further details will be given on **Saturday, September 28**.

## **GRADING POLICY**

### **METHODS OF EVALUATION**

Attendance & Participation: 20 points

Assignments and Quizzes: 40 points

Field Trip Notes: 10 points

Take-Home Assignment 30 points

Total = 100 points

### **GRADING SCALE**

90 - 100 % A

80 - 89 % B

70 - 79% C

60 - 69 % D

59% and below F

### **CRITERIA FOR GRADING / GRADING STANDARDS / ASSESSMENT MODULES**

Your total number of points, out of the maximum of 100 points, will be converted to a percentage and a letter grade will be assigned according to the grading scale shown above. Incompletes will not be given. You will receive **ZERO** points for any missed work, and will fail the class if you are absent for more than 5 hours of class time, or be dropped if those hours are the first day.

**Quizzes:** Unless explicitly told otherwise, quizzes will be completed INDIVIDUALLY (no collaboration with classmates or anyone else) but will be open book for any PRINT notes/references you care to use. No internet sources may be used.

**Class Activities:** When completing the exercises, please be certain to answer all of the questions, that your work is neat, and all spelling is correct. I recommend that you do your work in pencil. Working together and discussing questions with your classmates is encouraged; however, all of your answers must be written in your own words. If I receive papers with duplicate answers, I will assume that copying has occurred and you may receive a ZERO for that assignment.

**Take-home assignment:** The Take-Home Assignment will be given to you at the end of the day on **Saturday, September 28**, and you will need to submit your work as a .doc, .docx, .pdf, or .rtf document using the DropBox on D2L no later than **9:00 PM on Sunday, October 13.** No late work will be accepted. Be certain to begin the assignment start early and get any technical help you need with D2L well in advance of the deadline. I will have your final grades posted no later than **noon on Thursday, October 17.**

### **ATTENDANCE POLICY**

Attendance for all parts of this class is mandatory. Missing 5 hours or more will result in your receiving an "F" for your final class grade, regardless of your performance on graded material. Attendance and participation also count directly as 20% of your grade when calculating your average. In addition, there will be graded activities throughout class time, and there is no make-up for any of these for which you are not present. Missing one part of class also usually makes understanding of the next part difficult or impossible, since most of what we will be doing builds upon previous activities. Furthermore, you need to arrive on time each day and after breaks. Tardiness will result in a reduction of your attendance/participation grade, up to the maximum number of points. Likewise, sleeping during class, not pulling your weight in group activities, and any other type of "checking out" will also result in loss of these points.

## **IMPORTANT DATES**

**STUDENTS: PLEASE VERIFY THE SPECIFIC DROP AND WITHDRAW DATES FOR THIS COURSE IN YOUR “[Detailed Student Schedule \(with Drop-Withdrawal Dates\)](https://erpdnssb.cccs.edu/PRODRRCC/wt_student_sched.P_DisplayStudentSched)” LINK IN THE ROCK, UNDER THE STUDENT TAB**  
([https://erpdnssb.cccs.edu/PRODRRCC/wt\\_student\\_sched.P\\_DisplayStudentSched](https://erpdnssb.cccs.edu/PRODRRCC/wt_student_sched.P_DisplayStudentSched))

### **DROP/CENSUS DATE (LAST DAY TO DROP WITH A REFUND)**

This is the last day you can remove yourself from this class without having to pay for the class and without the class showing on your permanent student record. If you are considering dropping the class, please talk to your instructor first. If you are on financial aid, you should also consult a financial aid advisor before dropping a class. All students are encouraged to see an academic advisor about how dropping may affect their goals.

### **WITHDRAW DATE (LAST DAY TO WITHDRAW WITH A “W”)**

This is the last day you can remove yourself from this class and receive a “W” for the class instead of a grade. You are responsible for payment. If you are considering withdrawing from the class, please talk to your instructor first. If you are on financial aid, you should consult a financial aid advisor before withdrawing from a class. All students are encouraged to see an academic advisor about how withdrawing may affect their goals.

Per school policy, students who do not attend the first day of class will also be dropped from the class.

### **MAKE-UP / LATE WORK POLICIES / EXTRA CREDIT**

Late work will NOT be accepted and is due at the START of class!! Extra credit is not offered in this class.

### **ACADEMIC INTEGRITY STATEMENT / ACADEMIC DISHONESTY**

Please refer to the Academic Misconduct paragraph from the student handbook listed in the RRCC SYLLABUS INSERT.

### **CLASSROOM CONDUCT**

Please refer to the Academic Misconduct paragraph from the student handbook listed in the RRCC SYLLABUS INSERT.

### **Disruptive or Dangerous Behavior Policy**

Persistent behavior that undermines a respectful classroom will be addressed promptly and in a fair and consistent manner. Depending on the level of disruption or danger, immediate action may be taken to restore the classroom to a productive and safe environment. This may include being asked to step outside to speak individually with the professor, being given a verbal warning, being asked to leave the classroom, a referral to the RRCC behavior intervention team, a call to campus police, or suspension from attending classes.

### **CLASS CANCELLATION POLICY**

In the case of a closure of the school, you will be notified by the College. I will post an alternative assignment for you to complete outside of class to make up for the missed class time. This assignment will be posted on the class D2L website.

## **RRCC SYLLABUS INSERT – REQUIRED AND ADDITIONAL INFORMATION**

All students are required to be familiar with the information contained in the RRCC Syllabus Insert document. In addition to your instructor reviewing the required content in class, the RRCC SYLLABUS INSERT can be found as an announcement on all D2L landing pages (where you have access to all of your courses) and in the “Student Resources” pull-down menu.

### **TENTATIVE COURSE SCHEDULE**

On Saturday, September 28, we will take a 30-minute field trip to look at minerals on the Red Rocks Campus. On Saturday, October 5 we will take a 2 - hour field trip to see examples of minerals and gems at the Colorado School of Mines Geology Museum.

#### **WEEK 1 – SATURDAY, SEPTEMBER 28**

- Introductions and Course Overview
- Definition of Minerals and Gems
- Formation of Minerals and Gems
- Physical and Optical Properties of Minerals and Gems
- Classification of Minerals and Gems
- Mineral and Gem Identification Lab
- On-campus field trip
- Handout and Instructions for the Take-Home Assignment (due 9:00 PM on Sunday, October 13)

#### **WEEK 2 - SATURDAY, OCTOBER 5**

- Mineral Quiz
- Mineral Growth and Crystalline Structures
- Off - campus Field Trip

#### **WEEK 3 – SATURDAY, OCTOBER 12**

- Quiz
- Economic Uses of Mineral and Gems
- Colorado Minerals and Gems
- Mineral Collecting
- Mining
- Course Evaluations