TEXAS A&M UNIVERSITY – CORPUS CHRISTI
COLLEGE OF SCIENCE AND ENGINEERING

GEOLOGY 3411.001 – MINERALOGY

Department of Physical and Environmental Sciences
Fall 2017

A. COURSE INFORMATION

Course number/section: GEOL 3411.001
Class meeting time: TR 02:00-03:15 pm
Class location: BH 126

Lab sections and meeting time: GEOL 3411.101 R 09:00-10:50 pm;
GEOL 3411.102 R 03:30-05:20 pm

Lab location: CS 226

Course website: Blackboard  http://Bb9.tamucc.edu

B. INSTRUCTOR INFORMATION

Instructor: Ms. Elia Gil
Office location: CS 226
Office hours: M 2-4:30 pm
e-mail: elia.gil@tamucc.edu
Appointments: Please email instructor directly for an appointment, or if you have any
questions or concerns.

Lab Instructor: Sajjad Abdullajintakam
e-mail: sajjada@tamucc.edu

C. COURSE DESCRIPTION

Catalog Course Description
Study of the physical and chemical properties of minerals. Introduction to the crystallography
of minerals, optical mineralogy, and the use of the polarized light microscope. Laboratory
study of mineral identification in hand specimens and thin sections. Prerequisites: GEOL
1403, CHEM 1411, and CHEM 1412 (may be taken concurrently). SMTE 0094 is a co-
requisite for this course. Documented completion of this safety training is required early in
the semester for continued participation in this course. Safety training given during a
laboratory meeting early in the semester is required for continued participation in this course.
Extended Course Description

This is a course in college-level Mineralogy primarily for students majoring in Geology or Environmental Science. Coursework will include the study of physical and chemical properties of minerals, introduction to the crystallography of minerals, optical mineralogy, and the use of the polarized light microscope. Laboratory study of mineral identification in hand specimens and thin sections.

D. PREREQUISITES AND COREQUISITES

GEOL 1403, CHEM 1411, CHEM 1412 (may be taken concurrently).
SMTE-0094 Geology Lab Safety Seminar

E. REQUIRED TEXTBOOK, READINGS AND SUPPLIES

Required Textbook

It is extremely important that you read the assigned chapters and stay current with the reading. The concepts presented here are challenging so you may need to read this material multiple times. All reading assignments are to be read prior to the class in which the material will be discussed.

Drafting Supplies
The lab section will require the use of some basic drafting supplies. The following is a list of what is needed. Please bring these items with you to each session.
- Mechanical pencil (lead size of 0.5 mm or finer), eraser, and colored pencils (a few sets will be available for use during lab)

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

By the end of this course, students will be able to:
1. Explain the main concepts central to the study of minerals, including symmetry, crystal chemistry, and crystal structure.
2. Describe the basic concepts and theory of optical mineralogy.
3. Identify the most important physical and optical properties of minerals.
4. Apply criteria to identify the most common minerals based on these properties in hand specimen and thin section.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

We will use a variety of instructional methods in this course, including lectures, discussions, and hands-on exercises.

MAJOR COURSE REQUIREMENTS AND GRADING

The student learning outcomes described in Section F will be measured through the assignments listed below.
<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>FINAL GRADE</th>
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<tbody>
<tr>
<td>Lecture Exam I</td>
<td>100 points</td>
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<tr>
<td>Lecture Exam II</td>
<td>100 points</td>
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<tr>
<td>Comprehensive Final Exam</td>
<td>100 points</td>
</tr>
<tr>
<td>Lab Exams</td>
<td>2 @ 100 points each</td>
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<tr>
<td>Chapter Quizzes</td>
<td>5 or more @ 10 points each</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>550 points</strong></td>
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H. COURSE CONTENT/SCHEDULE

- September 04: Labor Day Holiday (campus closed)
- September 05: Classes Begin
- October 05: Lecture Exam I
- October 12: Lab Mid-term exam
- November 14: Lecture Exam II
- November 17: Last day to drop a class
- November 22: Reading Day (No class)
- November 23-24: Thanksgiving Holidays (campus closed)
- November 30: Lab Final Exam
- December 06: Last day of classes
- December 07: Reading Day
- December 14: Lecture Final Exam 1:45 pm – 4:15 pm

LECTURE & LAB SCHEDULE

SEPTMBER

<table>
<thead>
<tr>
<th>Day</th>
<th>Date</th>
<th>Topic/Chapter</th>
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<tbody>
<tr>
<td>Tues</td>
<td>09/05</td>
<td>Introduction/Definitions, Chapter 1</td>
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<tr>
<td>Thurs</td>
<td>09/07</td>
<td>Crystallography I, Chapter 2</td>
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<td>Lab Crystal Symmetry and Morphology I, Chapter 2</td>
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<tr>
<td>Tues</td>
<td>09/12</td>
<td>Crystallography II, Chapter 2</td>
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<td>Thurs</td>
<td>09/14</td>
<td>Crystal Chemistry I, Chapter 3</td>
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<td></td>
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<td>Lab Crystal Symmetry and Morphology II, Chapter 2</td>
</tr>
<tr>
<td>Tues</td>
<td>09/19</td>
<td>Crystal Chemistry II, Chapter 3</td>
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<tr>
<td>Thurs</td>
<td>09/21</td>
<td>Crystal Structure I, Chapter 4</td>
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<td>Lab Native Elements, Sulfides, and Related Minerals, Chapters 19, 20</td>
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<tr>
<td>Tues</td>
<td>09/26</td>
<td>Crystal Structure II, Chapter 4</td>
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<td>Thurs</td>
<td>09/28</td>
<td>Mineral Growth I, Chapter 5</td>
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<td>Lab Oxides, Hydroxides, and Halides, Chapter 18</td>
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<td>OCTOBER</td>
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<td>Mineral Growth II, Chapter 5</td>
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<tr>
<td>10/03</td>
<td>Tues</td>
<td>Lecture Exam I</td>
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<tr>
<td>10/05</td>
<td>Thurs</td>
<td>Lab Carbonates, Sulfates, Phosphates, Tungstates…, Chapter 17</td>
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<tr>
<td>10/10</td>
<td>Tues</td>
<td>Silicates, Chapter 11</td>
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<tr>
<td>10/12</td>
<td>Thurs</td>
<td>Framework Silicates, Chapter 12</td>
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<td>Lab Mid-Term Exam</td>
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<tr>
<td>10/17</td>
<td>Tues</td>
<td>Sheet Silicates, Chapter 13</td>
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<td>10/19</td>
<td>Thurs</td>
<td>Chain Silicates, Chapter 14</td>
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<td>Lab Framework and Sheet Silicates, Chapters 12, 13</td>
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<tr>
<td>10/24</td>
<td>Tues</td>
<td>Disilicates and Ringsilicates, Chapter 15</td>
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<td>10/26</td>
<td>Thurs</td>
<td>Orthosilicates, Chapter 16</td>
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<td>Lab Ortho-, Di-, Ring, and Chain Silicates, Chapters 14, 15, 16</td>
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<tr>
<td>10/31</td>
<td>Tues</td>
<td>Carbonates, Sulfates, Phosphates…, Chapter 17</td>
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<td>NOVEMBER</td>
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<td>Oxides, Hydroxides, and Halides, Chapter 18</td>
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<tr>
<td>11/02</td>
<td>Thurs</td>
<td>Lab Optical Properties of Rock-Forming Minerals I</td>
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<tr>
<td>11/07</td>
<td>Tues</td>
<td>Sulfides and Related Minerals, Chapter 19</td>
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<td>11/09</td>
<td>Thurs</td>
<td>Native Elements, Chapter 20</td>
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<td>Lab Optical Properties of Rock-Forming Minerals II</td>
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<tr>
<td>11/14</td>
<td>Tues</td>
<td>Lecture Exam II</td>
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<td>11/16</td>
<td>Thurs</td>
<td>Optical Mineralogy I, Chapter 7</td>
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<td>Lab Optical Properties of Rock-Forming Minerals III</td>
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<tr>
<td>11/21</td>
<td>Tues</td>
<td>Optical Mineralogy II, Chapter 7</td>
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<tr>
<td>11/23</td>
<td>Thurs</td>
<td>Thanksgiving; No lecture</td>
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<td>Lab Thanksgiving; No lab</td>
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<tr>
<td>11/28</td>
<td>Tues</td>
<td>X-Ray Crystallography and Chemical Analysis of Minerals, Ch. 8 and 9</td>
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<td>11/30</td>
<td>Thurs</td>
<td>Lecture Review</td>
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<td>Lab Lab Final Exam</td>
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<tr>
<td>DECEMBER</td>
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<td>Lecture Review</td>
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<tr>
<td>12/05</td>
<td>Tues</td>
<td>Lecture Review</td>
</tr>
<tr>
<td>12/14</td>
<td>Thurs</td>
<td>Lecture Final Exam 1:45 pm – 4:15 pm</td>
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Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams listed are directly related to the Student Learning Outcomes described in Section F.

I. COURSE POLICIES

Attendance/Tardiness
You are expected to attend all labs and remain in lab during your entire lab period. There are no make-up labs. Mineral identification is part of the lab, but most of your hand sample study may occur after lab hours. You are expected to bring your textbook to the laboratory as a reference for lab activities. Most laboratory instruction cannot be conveniently repeated outside of the scheduled laboratory time. Therefore, attendance of your assigned lab session is required.

Exams and Quizzes
Exams can only be taken during the scheduled time, except in cases of emergencies. Documented proof is required of such emergencies. There will be NO make up exams or quizzes for any unscheduled and unexcused absence. If you know you are going to miss a class or an exam and have a valid excuse, let me know BEFORE the fact, NOT after. Make-up exams cannot be taken after the graded test has been given back to the class. There will be no exceptions.

Quizzes happen randomly and are used to encourage regular attendance in class and will consist of a short series of multiple choice questions to be answered in approximately 5-10 minutes at the end of the class period. The quizzes may include material covered in previous lectures or in the reading assignment for that day.

Extra Credit
A lab notebook assignment will be offered worth up to 25 extra credit points. Details will be discussed during assigned lab sessions.

Cell Phone Use
The instructor discourages the use of electronic communication devices such as cell phones (texting, etc.) during class because they distract other students from the learning experience. Please place such devices in silent mode during class. If you must answer an emergency call, please walk unobtrusively out of the class, finish the conversation, and return to your seat equally unobtrusively.

Laptop Use
You are welcome to bring a laptop or other devices to class with the presumption that you are using it to facilitate your own learning (take notes). The use of laptops for other uses is discouraged as it distracts from the learning experience.

Food in Class
Drinks (with a lid) and snacks are allowed in Bay Hall, but no food or drink is allowed in CS 226. Drinks may be kept outside the lab room at your discretion.
J. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading,
may appeal the final grade given in the course. The burden of proof is upon the student to
demonstrate the appropriateness of the appeal. A student with a complaint about a grade
is encouraged to first discuss the matter with the instructor. For complete details,
including the responsibilities of the parties involved in the process and the number of
days allowed for completing the steps in the process, see University Procedure
13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible
through the University Rules website at
http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science
and Engineering Grade Appeals webpage at
http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the
grade appeal process, students may contact the chair or director of the appropriate
department or school, the Office of the College of Science and Engineering Dean, or the
Office of the Provost.

- **Disability Services**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that
provides comprehensive civil rights protection for persons with disabilities. Among other
things, this legislation requires that all students with disabilities be guaranteed a learning
environment that provides for reasonable accommodation of their disabilities. If you
believe you have a disability requiring an accommodation, please call (361) 825-5816 or
visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access
issues in the classroom or on campus, please contact the Disability Services office
for assistance at (361) 825-5816. http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes
could not be held on the campus of Texas A&M University–Corpus Christi; this
course would continue through the use of Blackboard and/or email. In addition,
the syllabus and class activities may be modified to allow continuation of the course.
Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be
operational within two days of the closing of the physical campus. However,
students need to make certain that the course instructor has a primary and a
secondary means of contacting each student.

K. OTHER INFORMATION
- **Academic Advising**
The College of Science & Engineering requires that students meet with an Academic
Advisor as soon as they are ready to declare a major. The Academic Advisor will set
up a degree plan, which must be signed by the student, a faculty mentor, and the
department chair. Meetings are by appointment only; advisors do not take walk-ins.
Please call or stop by the Advising Center to check availability and schedule an
appointment. The College’s Academic Advising Center is located in Center for
Instruction 350 or can be reached at (361) 825-3928.
GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture/lab periods.