INSTRUCTOR
Dr. Valeriu Murgulet
Email: valeriu.murgulet@tamucc.edu

LECTURES: MWF 11:00 – 11:50 AM; CI-128

OFFICE HOURS: TBA and/or by appointment

COURSE DESCRIPTION
Introductory study of the Earth processes using principles of chemical equilibrium, thermodynamics, isotope geochemistry and organic geochemistry. Applications of low-temperature geochemistry to geologic problems. Prerequisites: CHEM 1311 and CHEM 1111, CHEM 1312/1112, MATH 2413, and/or with instructor’s permission

COURSE OBJECTIVES
This course will give students the skills to:
1. Understand the fundamentals and applications of geochemistry and its relevance in the Earth processes.
2. Discuss the most important concepts of inorganic, organic and isotope geochemistry.
3. Discuss current issues in the field of geochemistry.
4. Apply geochemical models and equations to solve geochemical problems.

RECOMMENDED TEXTBOOKS

COURSE GRADING
3 Exams: 20% each
8 Problem Sets 40%

GRADING POLICY
A: 90-100%; B: 80-89.9%; C: 70-79.9%; D: 60-69.9%; F: 0-59.9%

ATTENDANCE POLICY
All students are expected to attend class. Poor attendance will result in missed lecture material and may reflect in less than desired class performance. It is the students’ responsibility to acquire class notes from peers if class is missed.
EXAMS
Each student is expected to take all exams at the designated time and place. Students who miss an exam will receive a grade of zero for that exam. Make-up exams will be given only on presentation of approved medical excuse, or by pre-excused permission of the instructor. No exceptions! One and only one make-up exam will be given after each regularly scheduled exam. Time and place for the make-up exam will be arranged at the next regularly scheduled class following each exam. The format of make-up exams may differ from that of the regular exam. All exams are closed book, however, the use of a calculator is permitted. Students who want to appeal a grade should do it in writing, at latest one day after the exam was returned. Please note the date of the final exam. No final exam will be given at an earlier date. Disability accommodations must be documented and approved by the Office of Disability Services.

Problem Sets
Eight problem sets will be assigned throughout the semester and are due a week later. You must do your own work. Late problems sets will receive half credit and will not be graded if turned in after graded problem sets have been handed out.

NOTICE TO STUDENTS WITH DISABILITIES AND VETERANS
Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

ACADEMIC ADVISING
The College of Science and 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. The College's Academic Advising Center is located in the Center for Instruction, room 350, and can be reached at 825-6094.

ACADEMIC INTEGRITY
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. The use of cell phones, pagers, CD players, headphones and similar electronic devices is not allowed in class. Keep these devices in your bags, not on the tables. You may be asked to refrain from using a laptop in class.

* Cheating will not be tolerated! * Please be advised that the penalty for cheating is a failing grade and possible further disciplinary action by the university.
The university policy of scholastic dishonesty will be followed in the event of academic misconduct. Academic misconduct includes all acts of dishonesty in any academically related matter and any knowing or intentional help or attempt to help, or conspiracy to help, another student.

*TENTATIVE LECTURE SCHEDULE*

**Week 1**
Syllabus. Introduction. The earth’s aggregate physical and chemical state

**Week 2**

**Week 3**

**Week 4**
Hydrolysis. Estimating Ionic Concentrations. Electrolyte Solutions. Activity; Complex Ion Formation

**Week 5**
**Solution-Mineral Equilibria: Carbonate Solubility.** Carbonate Solubility. Factors Affecting Solubility. Carbonate Sediments

**Week 6**
**Solution-Mineral Equilibria: Silica Solubility.** Kaolinite Solubility; Feldspar Equilibria. Activity Diagrams

**Week 7**

**Week 8**

**Week 9**

**Week 10**
**Week 11**


**Week 12**

**Oxidation and Reduction.** Oxidation Potentials Redox Potentials. Eh, pH Diagrams.

**Week 13**


**Week 14**

Stable Isotopes of Low Atomic Number. **Organic Geochemistry.** The Chemistry of Carbon Compounds.

**Week 15**


**READING:** Reading material will be assigned at the end of each lecture session.

**NOTE:** The syllabus is subject to change at the instructor’s discretion.