Research in Chemical Sciences (CHEM 5303)  
Department of Physical and Environmental Sciences  
Fall 2019

A. COURSE INFORMATION
Course number/section:  CHEM-5303.001
Class meeting time:  M/W 14:00-15:15
Class location:  TBD
Course Website:  https://bb9.tamucc.edu/webapps/login/

B. INSTRUCTOR INFORMATION
Instructor:  Dr. Richard B. Coffin
Office location:  NRC 3506
Office hours:  T/R 12:00-14:30
Telephone:  361-825-2456
e-mail:  richard.coffin@tamucc.edu
Appointments:  EMAIL

C. COURSE DESCRIPTION
Catalog Course Description
Studies and analysis of pertinent literature. May be repeated for credit, but credit may count only once towards the degree plan. Course is taken as credit/no credit.

Extended Course Description
Advanced topic study and presentation by students, faculty, or visiting scientists. Meets three hours (TR) weekly.

D. PREREQUISITES AND COREQUISITES
Prerequisites
ONLY Graduate or Graduate Doctoral;
Corequisites
N/A

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Required Textbook(s)
N/A

Optional Textbook(s) or Other References
• Extensive reading will be required from journals, newspapers, magazines, and other library holdings.
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

- Establish future leaders and professionals with an in-depth environmental science education
- Educate future leaders and professionals with specialized skills by teaching methods of collecting, interpreting, analyzing and presenting scientific data orally and in various media formats
- Provide a thorough overview of analytical organic and inorganic chemistry methods
- Enable future leaders and professionals to contribute to a profession or field of scholarship
- Establish competency in application of scientific methods and the ability to conduct experiments.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Traditional lectures via board demonstrations and powerpoint presentations, classroom discussions, and student projects. Laboratory reviews of TAMUCC chemistry capabilities.

A major focus of this course will be a review of the current literature. Students will be assigned to address a selected research topic. You are expected to thoroughly investigate the topic by compiling the most current research and review journal articles concerning the issue. The majority of the material must be drawn from leading journals articles (e.g., Science, Nature, Analytical Chemistry, Journal of Organic Chemistry, Chemical Reviews, Chemical Oceanography, Environmental Chemistry Organometallics, Journal of Mass Spectrometry, etc. and other top journals in a particular field) but may use other media as a supplement. During class you will: 1) lead the discussion on chemistry and chemistry instrumentation; 2) present your research plan; and 3) tour CSE PENS and LSCI laboratories. Ideally, the student will give a solid background review of the topic area and then discuss major issues including differing viewpoints. Key articles should be provided to the entire class by students two weeks prior to topic discussion in order to facilitate
interaction. Each student in the course will serve as a moderator and facilitator of
discussion topics they presented. **THE NUMBER OF PRESENTATION WILL
DEPEND ON THE NUMBER OF STUDENTS.**

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

Your grade will be calculated as a percentage of 400 available points:

- Evaluation of class chemistry presentations: 200 points
- Evaluation of student research focus: 100 points
- Class Participation: 100 points

**Total:** 400 points

Grade scale: A = 90-100%; B = 80-90%; C = 70-80%; D = 60-70%; F = 0-60%

I. **COURSE CONTENT/SCHEDULE**

**Major Areas of Study:**
1. Laboratory Chemistry Instrumentation
2. Field Chemistry Instrumentation
3. Autonomous Chemical Sensing
4. Organic Chemistry
5. Inorganic Chemistry
6. Environmental Chemistry
7. Contamination and Pollution

Note: Changes in this course schedule may be necessary and will be announced to the class by
the Instructor. The assignments and exams shown are directly related to the Student Learning
Outcomes described in Section F.

J. **COURSE POLICIES**

**Attendance/Tardiness**
Students should attend all class meetings. Participation is essential to do well in the class.
Discussions and student input are considered an important part of the class. Class exams
cannot be retaken other than for an excused absence. Excused absences are limited to
medical emergencies that can be certified in writing by a physician, participation in a
TAMUCC sanctioned event or other similar circumstances justified in writing and specified
in the TAMUCC graduate catalog for the ongoing academic year. Points will be deducted if
tardy for more than 5 minutes or absent for the entire class period. **Please keep in mind that
a large part of the grade is based on participation, and participation requires being
present.**
Late Work and Make-up Exams
Not accepted

Extra Credit
N/A

Cell Phone/ Laptop Use/Food in Class
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.

Missed Exam
Assignments are expected on time unless prior arrangements are made. Such prior arrangements will be granted only in exceptional circumstances as well. Submitting an assignment late without prior arrangement may lead to a grade of 0 and at least to a substantial penalty.

Participation
See section on Attendance/Tardiness

Others
N/A

K. 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/](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](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](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.

L. **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.

M. **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 periods.