

Chemistry 5390
Fall 2025

- Lecture:** TTh 8:00 – 9:20 a.m. Room Chem 352.
- Instructor:** Dr. Teresa D. Golden: Chem 279, 565-2888, tgolden@unt.edu.
- Office hours:** TTh 9:30 – 10:30 a.m. Room 207B or 279, Chemistry. Appt also.
- Textbook:** *Electrochemical Methods Fundamentals and Applications*, A.J. Bard and L.R. Faulkner, Wiley, 2nd edition, 2001, ISBN 0-471-04372-9. Books on hold at Willis Library.
- Exams:** There will be 2-3 exams, various assignments, and a final exam. Dates for each exam will be announced in class. The final will be Tuesday, December 9th, 8:00 – 10:00 a.m.

*Absolutely no make-up exams will be given without a signed physician's note.

- Topics:** Basic electronics, signals & noise, theory, thermodynamics, kinetics, mechanisms, sweep & step methods, instrumentation, electroplating, (batteries, sensors, fuel cells, solar cells), corrosion, impedance.

Lecture Attendance is Required

- Research Paper:** A research paper will be required in class and count as 1 test grade. The topic must cover the latest advances in electrochemistry and can be related to students' research (journal article or dissertation chapter) or 6010. A white paper (1-2 pages) indicating the student's topic of choice (with initial reference list and format type) must be submitted to the instructor no later than September 30th.

- Grading:** A – 90% B – 80% C – 70% D – 55% F < 55%

Additional Information:

- (a) According to University policy, the grade of I (incomplete) cannot be given as a substitute for a failing grade in a course.
- (b) Statement of ADA Compliance: The chemistry department cooperates with the Office of Disability Accommodations to make reasonable accommodations for qualified students with disabilities. If applicable, please present your request along with an official written verification from the ODA before the end of the first week of classes.

Research Paper
Advances in Electrochemistry

Chem 5390

- ◆ (1) Research the chemistry literature in depth (this will be a large part of your grade).
- (2) If writing as a 6010 topic then follow 6010 division guidelines.
- (3) Paper covering student's research project for publication in a journal must follow journal guidelines.
- (4) Introduction chapter for thesis or dissertation must follow UNT guidelines.
- (5) Otherwise, research paper must follow ACS guidelines.

- ◆ Good places to start:
 - Chemical Abstracts –Sci Scholar
 - Journal Electrochemical Society
 - ACS Journals - Analytical Chemistry Journal
 - Elsevier Journals under Science Direct

- ◆ Write a white paper (1-2 pages) indicating the student's topic of choice and the format to be used, with a short reference list for approval – Due 09/30/25
- ◆ Write an extended detailed outline of your research paper with detailed reference list– Due 10/21/25
- ◆ Complete Research Paper – Due 12/02/25 (100 pts)

- ◆ Your Research Paper will count as one Test grade for the course (100 points)

General Format of Paper

- I. Title Page
Name, semester, course, professor, title of paper, format of paper.
- II. Abstract
100 - 200 words
- III. Introduction
General overview of electrochemistry, etc...
- IV. Experimental
Instrumentation, what are the components, how are they arranged, what is their purpose, show diagrams, specs
- V. Theory
How does the instrument or technique work, what are the fundamental principles, equations (mathematical and/or chemical).
- VI. Applications and Data
What are the applications, show data, use tables, discuss results.
- VII. References
ACS format, Numbered with Complete bibliography

*Any plagiarism and AI use in the report will result in a failing grade. Use your own words; if you are not sure about any section or part of your writing come see me for help.