

**CHEM 550-01W: Advanced Methods in Chemical Research**

LOCATION: Blended face-to-face and online course.

INSTRUCTOR: Dr. Laurence Angel, SCI 341

Phone: 5391, Laurence.Angel@tamuc.edu (email is the preferred form of communication)

OFFICE HOURS: Mon - Fri: 4:00 – 5:00pm (or by appointment)

COURSE DESCRIPTION: The course will provide students with the knowledge and skills to advance their technical reading and writing skills by developing a report over the semester that describes an experimental research area. The report will include an introduction including a literature review of the research area, detailed description of the protocol, and presentation and discussion of representative results. In this endeavor, the students will develop critical reading skills to understand research articles and develop their own technical writing skills. The use of databases and online research tools such as SciFinder, Web of Science and Endnote for searching and collecting scientific literature will be required. The students will also present their research outcomes using a 15-min PowerPoint presentation at the end of the semester. These skills are important aspects for recording and disseminating scientific knowledge.

STUDENT LEARNING OUTCOMES: Outcomes will include completion of chemical database searching, critical reading, technical writing, and an oral presentation. Students will be required to complete the assignments and present their report progress to the instructor through quarterly submissions of their midterm reports. At the end of the semester a final comprehensive research report that includes all sections developed during the semester and a 15-min PowerPoint presentation are due. The class is 3 semester hours.

COURSE REQUIREMENTS, ASSIGNMENTS AND GRADING

Midterm reports: 1) introduction to a scientific research area, 2) literature review, 3) representative research results, 4) discussion of results and conclusions. (15% each or 60% total)

PowerPoint presentation: presentation of your research to instructor and class (20%)

Final research report: final comprehensive report which combines an abstract, introduction with literature review, experimental methods, representative results, discussion and bibliography (20%)

A: >90.0; **B:** 80.0 – 89.9; **C:** 70.0 – 79.9; **D:** 60.0 – 69.9; **F:** <60.0

Course Schedule

Week	Subject	4 Midterm Reports Due
1	Introduction to Advanced Research Techniques	
2	Chemical Database Searching and Critical Article Reading	
3	Scientific Writing and Presentation of Introduction First Midterm Report due by Friday 9am	1
4	Protocols and Experimental Research Techniques	
5	Advanced Laboratory Techniques	
6	Presentation of Experimental Section and Scientific Writing Second Midterm Report due by Friday 9am	2
7	Representative Results	
8	Development of Laboratory Research	
9	Development of Representative Results Section	
10	Third Midterm Representative Results Report due by Friday 9am	3
11	Development of Discussion of Representative Results	
12	Presentation of Discussion of Protocol and Representative Results Fourth Midterm Report due by Friday, 9am.	4
13	Development of PowerPoint presentation	
14	Oral Presentations due by Wednesday 12:00pm	PowerPoint Presentation
15	Development of Abstract and final corrected report	
16	Final report due by Monday 9am	Final Report Due

FIRST MIDTERM REPORT

The first report will focus on the “Introduction” to your research report.

Use the “Introduction” in the JoVE articles on the course site as a guide. Do not include an Abstract or any other section in the first report because these will be developed later in the course.

The grade for the report will be based on how descriptive and informative the report is. It should be concisely written in a scientific technical language. Format chemical names or chemical formula appropriately with subscript and superscripts. On first use of a chemical name, you should describe it completely and in brackets give an abbreviation, if appropriate, to use in future uses of the chemical name. I would like to be informed and rewarded by reading the report and feel like I have learnt something new. This report will help the students to develop their critical reading skills for understanding research articles and develop their own technical writing skills. The report will be checked for plagiarism so make sure it is originally written.

The format of the “Introduction” should be single-spaced, **2-page limit in 12 font size Arial font**. The report should include **10-20 referenced** current articles that you have collected using **SciFinder** or **Web of Science** and **saved in EndNote** and used to explain the background and current developments in your specific research area. The **references should be cited in the report** where their information was used **in the ACS style** using EndNote. Following the 2-page report, EndNote will list the **references** and these should be **in the same font and size, single-spaced** as the rest of the report in the ACS style.

Once you have **EndNote set-up** on your computer and added to your **Word program** you can **download articles to EndNote from SciFinder** by choosing the “**Download**” and “**.ris**” format. This

will automatically download the article(s) to your EndNote. During the process, you may be asked to **login to EndNote** and should at the end receive a message that citations have been **saved to EndNote**. *It is your responsibility to set-up SciFinder and EndNote with your Word program and to have them working together properly to correctly format your first report. Read the information in the Databases on the library site <https://tamuc.libguides.com/chemistry/introduction>. The grade associated with your first midterm report will reflect your proper use of SciFinder, EndNote and the citation in Word of the references.*

You should be able to follow the instructions for setting up SciFinder or Web of Science and EndNote available on the library site. Librarians are also available to help you with your research. See the following link for contact information.

<https://www.tamuc.edu/research-help-and-faculty-support/>

Introduction Grading Rubric

Name _____

	Exceeds Standards	Meets Standards	Below Standards	Fails Standards
Completeness of background and current research in chosen area (25%)	Superior completeness; student's introduction of the article was extraordinarily thorough (25)	Complete; student's introduction of the article covered mostly all aspects (20)	Mostly complete but with gaps in some areas; student's introduction was missing some key points (18)	Incomplete in most respects (15)
Focus and detail on the research area (25%)	Research area was described in extraordinarily specific detail (25)	Research area was described in complete detail (20)	Research area description was mostly complete but there were gaps (18)	Research area description was inadequate (15)
Technical writing quality (25%)	Introduction was extraordinarily clear and insightful (25)	Introduction was clear and effective (20)	Introduction was unfocused (18)	Introduction failed to communicate in an adequate manner (15)

Format of report, with SciFinder and EndNote used appropriately to include citations (25%)	Report was extraordinarily formatted following the guidelines. (25)	Report was formatted following the guidelines. (20)	Report was mainly formatted following the guidelines. (18)	Report was poorly formatted not following the guidelines. (15)
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TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@etamu.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a ETAMU campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement – Primary and preferred communication is through email.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<https://inside.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf>.

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

ETAMU Attendance

For more information about the attendance policy please visit the [Attendance](#) webpage and Procedures 13.99.99.R0.01

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

Graduate Students Academic Integrity Policy and Form

[Graduate Student Academic Dishonesty Form](#)

<https://inside.tamuc.edu/aboutus/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10.pdf>

Students with Disabilities-- ADA Statement

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 have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

East Texas A&M University

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@etamu.edu

Website: [Student Disability Services](https://www.etamu.edu/student-disability-services/) <https://www.etamu.edu/student-disability-services/>

Nondiscrimination Notice

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all East Texas A&M campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

East Texas A&M University Supports Students' Mental Health

The Counseling Center at East Texas A&M University, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.etamu.edu/counsel

Mental Health and Well-Being

The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download

the app and explore the resources available to you for guidance and support whenever you need it.



<http://telusproduction.com/app/5108.html>

AI use policy [Draft 2, May 25, 2023]

East Texas A&M University acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course. Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Graduate Student Academic Dishonesty Form](#)

For each report and the final report you must include a statement as follows:

"During the preparation of this work, the author(s) used [Name of Tool and Version, e.g., ChatGPT-4] to [describe specific use, e.g., summarize and synthesize themes from selected literature research]. After using this tool, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication."