

University of Mary Washington
Department of Chemistry

CHEM 453: Seminar
Spring 2025
Section 2

Instructor: Dr. Randall D. Reif
Jepson 435A; rreif@umw.edu ; x5983

Office Hours: Monday 2:30-4:00 PM
Tuesday 3:00-4:00 PM
Thursday 3:30-4:30 PM
Friday 9:30-11:00 AM
Other times by appointment.
I also have an open door policy-drop by anytime my door is open!

Class Times: Lecture: M, W, F 12:00 PM – 12:50 PM Jepson 451

Required Course Materials:

- 1.) Hofmann, Angelika, *Scientific Writing and Communication*, 3rd edition
- 2.) A webcam and stable internet connection
- 3.) Access to Canvas: This course will make use of the Canvas course management system. Please check here frequently as materials posted will include course announcements, assignments, course videos, and other course materials as necessary. Adjust your notification settings to be sure that you remain up-to-date on the course.
- 4.) Access to Zoom: This course will make use of Zoom for video conferencing.
- 5.) ACS Style Quick Guide. In *The ACS Guide to Scholarly Communication*; ACS Guide to Scholarly Communication; American Chemical Society, 2019.
<https://doi.org/10.1021/acsguide.40303>.

Course Description

Chemistry seminar provides students with the opportunity to research and deliver an oral presentation on a recent topic from the chemical literature in a setting where ample feedback and instruction is provided. The American Chemical Society (ACS) and chemical industry view communication of scientific knowledge as one of the essential skills a practicing chemist should possess. According to the *ACS Guidelines and Evaluation Procedures for Bachelor's Degree Programs* (§7.4, 2015),

“Effective communication is vital to all professional chemists. Speech and English composition courses alone rarely give students sufficient experience in oral and written communication of technical information. The chemistry curriculum should include critically evaluated writing and speaking opportunities so students learn to present information in a clear and organized manner, write

well-organized and concise reports in a scientifically appropriate style, and use relevant technology in their communications.”

General Education and Course-Specific Learning Objectives:

After completing the course, a student should

- gain competence using library and information resources to research chemical literature
- gain competence in reading and interpreting primary chemical literature
- develop and/or improve oral communication skills
- demonstrate an understanding of chemical concepts related to a chosen topic

In addition, as an SI course,

- Students will understand and be able to explain the conventions and expectations of oral communication as practiced within the discipline of the course taken.
- Students will apply theories and strategies for crafting messages (verbal, nonverbal, and visual) for particular audiences and purposes.
- Students will be able to craft oral messages after a conscious process in which various options are reviewed and will be able to explain and support their choices.
- Students will be able to meta-communicate about their own communication patterns.

Grading

Class Participation	10%
Initial Topic Presentation	10%
10 Minute Proposal Presentation	15%
Draft Abstract, Outline, Annotated Bibliography	5%
Final Abstract and Annotated Bibliography	10%
Practice Presentations with Speaking Center and Faculty Mentor	10%
Oral Presentation	40%
Final Exam	not graded, but required to pass course

Midsemester deficiency reports will be submitted for students who have made insufficient progress finding a topic and/or unsatisfactory course participation

Letter Grades:

A: $\geq 93\%$	A-: 90 – 92%	
B+: 87 – 89%	B: 83 – 86%	B-: 80 – 82%
C+: 77 – 79 %	C: 73 – 76%	C-: 70 – 72%
D+: 67 – 69%	D: 60 – 66%	
F: $\leq 59\%$		

Policy on Late Work

Since all assignments will help in preparing a successful final presentation, late work will be accepted. Work submitted by the due date is eligible for full credit; work submitted within one week after the due date will be eligible for half the possible credit. Final oral presentations must be given on the assigned date. If students have to quarantine or self-isolate, they are expected to be in close communication with the course instructor about assignments and due dates.

Participation

This is assessed solely by the instructor and comprises the following requirements: (1) regular class attendance (**only one absence is permitted, and missed work must be completed**); (2) preparation for and participation in class discussions and activities; (3) peer evaluations of initial, 10 minute, and final seminar; (4) regular participation in Q&A periods following oral presentations.

Assignments

Initial Topic Presentation: This is assessed solely by the instructor with input from peer evaluations submitted by students. This is an opportunity to receive feedback on potential seminar topics. It comprises the following requirements: (1) selecting three possible primary papers; (2) presenting a 10 minute “elevator pitch” of the papers to the other students in class. Student questions and comments after the elevator pitch are expected, and these comments as well as instructor feedback about the possible primary topics should guide the final selection of a primary paper. Any initial papers not selected by a student for further research are free to be used by other students who are searching for a primary topic.

10 Minute Proposal Presentation: This is assessed by the faculty in your section, with feedback from your peers and other Chemistry faculty members, if relevant. Students will deliver a 10-minute oral proposal based on their chosen primary and supporting paper(s). The presentation will be recorded by the student and submitted on Canvas. The proposal should include PowerPoint or equivalent visual aids to introduce your research topic and must be closed captioned for accessibility. The proposal must demonstrate to the faculty that you: (1) have chosen an appropriate topic of sufficient quality; (2) understand your primary topic in enough detail to clearly present its central elements; (3) have found an appropriate primary paper(s) and supporting materials that will enhance the depth and breadth of your final oral presentation; (4) can clearly articulate the conceptual and technical details you intend to present in your final oral presentation. In addition to submission of the recorded 10-minute proposal, a draft outline for the final oral presentation and a pdf of the primary paper must be submitted on Canvas. The draft outline of your oral presentation must include: (1) an alphanumeric outline of topics to be presented; (2) an explicit statement of how you plan to budget the speaking time allotted for each point. Students are expected to watch all 10-minute proposal recordings and evaluate them as part of appropriate class participation.

Draft Abstract: *Due March 13th, submitted on Canvas.* This is assessed by the instructor and the student's faculty mentor. Students will submit a draft abstract that contains the following elements: (1) properly formatted identifying information; (2) an abstract with a maximum of 150 words discussing what the oral presentation will cover; (3) an alphanumeric outline of the topics covered in the final oral presentation; (4) an annotated bibliography. The annotated bibliography should begin on a separate page from the abstract and outline. It should repeat all references noted in the abstract and include any additional references used in developing the oral presentation. The annotations should specify (in proper written prose) how each reference was used in preparing the talk.

Final Abstract: *Due at least one week before your oral presentation, submitted on Canvas.* This is assessed by the faculty in your section, with feedback from other Chemistry faculty members, if relevant. This should be a final version of the abstract and annotated bibliography (do not include an outline of the talk!) that takes into account comments and feedback from the instructor and faculty mentor about the Draft Abstract.

Practice Presentations:

with Speaking Center: At least 10 days before their Oral Presentation, students must have made an appointment and conducted a practice presentation with the [Speaking Center](#). Speaking Center consultant notes will be used to verify and assess this presentation.

with Faculty Mentor: At least one week before the Oral Presentation, students must deliver a practice presentation for their faculty mentor. The PowerPoint or equivalent visual aids must be made available to the faculty mentor at this time. The practice is assessed by the student's faculty mentor according to the following elements: (1) clarity of oral and visual communication; (2) accuracy of scientific and technical details; (3) organization; (4) adherence to the time requirements of 25 minutes minimum, 30 minutes maximum. By the date of the final Oral Presentation, students must also submit a written statement (on Canvas) detailing how the faculty mentor's feedback on the practice presentation was incorporated into the final Oral Presentation.

The practice presentation grade will be 20% speaking center attendance, 60% faculty evaluation of practice presentation, and 20% reflection statement and incorporation of feedback. *Failure to submit this statement by the due date will result in a 0 for the Practice Presentation grade.*

Oral Presentation: This is assessed by the faculty in your section, with feedback from other Chemistry faculty members, if relevant. ***All final seminars will be delivered in person and recorded using Zoom.*** Assessment is based on the following elements (details will be discussed in class): (1) scope and quality of topic focus; (2) clarity and coherence of the central message throughout the talk; (3) organization of material and visual aids; (4) attention to including information appropriate to the audience specialization level; (5) appropriate use of information from primary paper(s), supporting information, and prior coursework to draw conclusions, make connections, and compare and contrast results from different sources; (6) accuracy of the scientific information and ability to demonstrate a firm grasp on the conceptual and technical details; (7) general quality of the delivery with respect to poise, articulation, transitions between ideas, etc.;

(8) ability to answer questions during the Q&A portion after the talk. Presentations will be recorded so that faculty and students who miss a talk can evaluate them and so that you have the chance to observe and critique yourself.

Students are expected to attend and evaluate all final oral presentations as part of appropriate class participation.

Extra Credit: Students will be given the opportunity for a total of 3% extra credit by critiquing practice presentations of up to 3 other students (1% per peer). Students must sign up in advance, and the audience student must complete a formal written critique of the seminar including strengths and areas for improvement in the science presented as well as the delivery.

Final Exam: Students are required to take the Diagnostic of Undergraduate Chemistry Knowledge Exam (DUCK) to complete the course. This is a standardized exam given by the ACS that allows the Chemistry Department to assess the effectiveness of our major curriculum. Failure to complete the DUCK will result in failure of the course.

Honor System

Any assignment for which you will receive a grade must be completed and pledged as your own work. The honor pledge must be written in full: *I hereby declare upon my word of honor that I have neither given nor received unauthorized help on this work.* (Signature). I will not grade an assignment without a signed pledge.

Suspected violations of the Honor Code will be addressed according to the policy established by the Honor Council. Please familiarize yourself with the University's policies on academic dishonesty: ignorance is not an excuse!

Office of Disability Services

The Office of Disability Services has been designated by the University as the primary office to guide, counsel, and assist students with disabilities. If you receive services through that office and require accommodations for this class, please make an appointment with me as soon as possible to discuss your approved accommodation needs. Bring your accommodation letter with you to the appointment. I will hold any information you share with me in the strictest confidence unless you give me permission to do otherwise. If you need accommodations, (note taking assistance, extended time for tests, etc.), I would be happy to refer you to the Office of Disability Services. They will require appropriate documentation of a disability. Their phone number is 540-654-1266.

If you have allergies to any chemicals or other emergency medical information, please notify me as soon as possible.

Course Recording Policy and Distribution of Course Materials

Classroom activities in this course may be recorded by the course instructor. These may be used for students who are unable to attend the class due to quarantine or self-isolation. 10 Minute Proposal and final oral presentations will be recorded. Students will have the option to consent for these recordings to be used in future offerings of the course for instructional purposes. All students are advised that classroom activities may be taped for these purposes. All students in the course will be notified whenever recording will be taking place.

Classroom activities in this course may be recorded by students enrolled in the course for the personal, educational use of that student only, and may not be further copied, distributed, published, or otherwise used for any other purpose without the express written consent of the course instructor. All students are advised that classroom activities may be taped by students for this purpose.

Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded. Distribution without permission is a violation of educational privacy law.

Any class materials provided for this course are for the personal, educational use of that student only, and may not be further copied, distributed, published, or otherwise used for any other purpose without the express written consent of the course instructor. Distribution or sale of any and all class materials provided for this course is prohibited without the written permission of the instructor. Distribution or sale of any and all class materials provided for this course without permission is a violation of copyright law.

****Students in violation of any part of this policy are subject to disciplinary action through the Office of Judicial Affairs and Community Standards.****

This policy is consistent with UMW's Policy on Recording Class and Distribution of Course Materials.

Title IX Statement

University of Mary Washington faculty are committed to supporting students and upholding the University's *Policy on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence*. Under Title IX and this Policy, discrimination based upon sex or gender is prohibited. If you experience an incident of sex or gender based discrimination, we encourage you to report it. ***While you may talk to me, understand that as a "Responsible Employee" of the University, I MUST report to UMW's Title IX Coordinator what you share.*** If you wish to speak to someone confidentially, please contact the below confidential resources. They can connect you with support services and help you explore your options. You may also seek assistance from UMW's Title IX Coordinator. Please visit [UMW's Title IX website](#) to view UMW's policy and to find further information on support and resources.

Resources

Stephanie Lucas-Waverly
Title IX Coordinator
Office of Title IX
Fairfax House
540-654-5656
slucaswa@umw.edu

Crystal Rawls
Title IX Deputy for Students
UC 303
540-654-1801
crawls@umw.edu

Confidential Resources

On-Campus
Talley Center for Counselling Services
Lee Hall 106
540-654-1053

Student Health Center
Lee Hall 112
540-654-1040

Off-Campus
Empowerhouse
540-373-9373

RCASA
540-371-1666

A.I. Use Statement

AI is permitted in a limited capacity in this course. Students should refer to individual assignments for details as well as how/when appropriate citation for the tool should be used.

Although AI use is permitted in this course, you should keep the following points in mind:

- 1.) AI is a continuously developing tool. Keep track of how you use AI (e.g., original and revised prompts, where in your thinking process you used AI, different output over time). An electronic file with screenshots and notes or a written journal of your process documents your workflow and, as needed, supports appropriate attribution and citation.
- 2.) Fact check all AI output. AI tools are built on systems and inputs with acknowledged biases. Early and current AI output has produced factual errors and the tools 'hallucinate' or fabricate information. This is especially true if the AI is prompted about something for which it has little or no information. Unless

- you know the answer with 100% certainty, check responses with trusted sources.
- 3.) AI is only as good as the prompts it receives. It may take practice and time to use AI for results meeting expectations and standards. As a result, AI may not be the best or easiest route for completing a task.
 - 4.) Different professors treat the use of AI tools differently. Double-check with individual professors if you are unsure about whether AI use is appropriate for a specific assignment.

Tentative Course Schedule (all dates subject to change)

Spring 2025

13 Jan	Goals, expectations, describe the syllabus	15 Jan	Reading the literature	17 Jan	ACS webinar on seminars
20 Jan	No class	22 Jan	Library resources, Finding a topic/brainstorming	24 Jan	SciFinder exercise
27 Jan	Digital Knowledge Center	29 Jan	3 topics	31 Jan	Careers Presentation
03 Feb	Initial Topic Presentations 1-3	05 Feb	Initial Topic Presentations 4-6	07 Feb	Initial Topic Presentations 7-9
10 Feb	How to present experimental sections	12 Feb	Outlines	14 Feb	SAR presentation
17 Feb	10-Minute Proposal Videos Due 1-4 Asynchronous Work on Assignments	19 Feb	Asynchronous Work on Assignments	21 Feb	Asynchronous Work on Assignments Peer reviews for 10-Minute Proposal Videos for 1-4 due
24 Feb	10-Minute Proposal Videos Due 5-9 Asynchronous Work on Assignments	26 Feb	Asynchronous Work on Assignments	28 Feb	Asynchronous Work on Assignments Peer reviews for 10-Minute Proposal Videos for 5-9 due
03 Mar	SPRING BREAK	05 Mar	SPRING BREAK	07 Mar	SPRING BREAK
10 Mar	Presentation on presentations	12 Mar	Abstract peer review workshop	13 Mar	Watch previous seminar All draft abstracts due
17 Mar	Asynchronous work on assignments or meet with mentor/instructor	19 Mar	Asynchronous work on assignments or meet with mentor/instructor	21 Mar	Asynchronous work on assignments or meet with mentor/instructor

24 Mar	Asynchronous work on assignments or meet with mentor/instructor	26 Mar	Asynchronous work on assignments or meet with mentor/instructor	28 Mar	Asynchronous work on assignments or meet with mentor/instructor
31 Mar	Presentation 1	02 Apr	Presentation 2	04 Apr	Presentation 3
07 Apr	Presentation 4	09 Apr	Presentation 5	11 Apr	Presentation 6
14 Apr	Presentation 7	16 Apr	Presentation 8	18 Apr	Presentation 9
21 Apr	TBD	23 Apr	Honors Presentation	25 Apr	Research & Creativity Day No class

Final exam: Wednesday, April 30th, 12:00 – 2:30 pm

Last day to drop a course: January 31

Last day to withdraw from a course or change to pass/fail grading: March 21