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Meeting time: Fridays, 2:20–3:10 PM in Lafayette L-403 or on-line via Teams for At-Home students. Our class is sufficiently small to all meet in person in L-403, but it is imperative that we adhere to safety recommendation to keep ourselves and everyone in the class safe.

We can have an in-person and synchronous course because much of what we do in class is talk about the science and how to communicate effectively. It is something that we can do with both an in-person and remote audience. The format is also useful for any individual who may need to quarantine during the semester. You will see all courses as a Teams meeting and can attend virtual as safety or your health demands.

Office hours: Friday, noon–2:00 PM via Teams.
Always feel free to make an appointment.
Please note: Like all offices, we should seek to minimize contact. It is far preferable to engage remotely (phone, Teams) before an in-person meeting. I will absolutely work with you for an in-person meeting if that serves you best, but please ask so we can make arrangements for a safe meeting.

Course description: We are spending the semester addressing a key skill for chemistry majors—the presentation of information in written form. Whether it is your data or not, it is important that you can clearly present the data and provide some assessment of its value.

It is critical that everyone can share ideas and are respectful of each other and different options and interpretations. Everyone's contribution is of value. So much of science is interpretation rather than being right—all voices must be heard.

The plan is to use the semester to build your skills in finding, understanding, and writing about the chemical literature. It is easy the literature as an absolute, but we need to think about who publishes and how our biases and experiences inform the way in which we read the literature. This requires ample outside reading as well as some discussion. Finally, learning to write requires practice, which we will do a couple of different ways.

Learning goals: The goal of this course is for students to find information in the chemical literature, give some assessment on the value of that information, and disseminate that analysis in written form. Therefore, we need to have students

1. Find ideas in the chemical literature using a variety of techniques.
2. Synthesize important ideas from multiple sources.
3. Evaluate literature with respect to the quality of conclusions and their potential impact.
4. Summarize data into short summary format.
5. Analyze and report on a theme from multiple sources.

Literature analysis: A major goal of the course is to make judgement on the quality and value of information in the chemical literature. A major pitfall for new chemists is the assumption that all published work is of high value and utility solely because it is published. Practicing chemists must make value judgements about what data they encounter. As such, we will practice with current examples across the chemical sub-disciplines. Early in the semester, we will discuss how chemists read and analyze literature.

You will practice this activity and write brief analysis papers, and the group will discuss the content and analysis in class. The papers will be no more than three pages, summarize the key points of the work, and provide references for any key ideas. An exact format will be discussed in class. The goal of the papers is to summarize your thoughts (and questions!) prior to class.

Reports: The culminating activity of the semester is a report on a topic of your interest. Your main task in the early papers of the semester is to select a topic for report. Topic selection is a significant challenge. These are my three major thoughts on this subject.

1. Your topic should be current, which would be demonstrated by significant activity in the last five years.
2. Your topic must be chemical. This would appear to be obvious, but it is easy to get trapped in overly extensive background or applications. The litmus test of how chemical a presentation is come from asking, "does this topic primarily deal with the physical properties of molecular substances?"
3. Your topic should be sufficiently broad but not overly so. For example, "chemotherapeutics" is much too broad, representing hundreds of compounds and decades of research. Topics of too narrow focus like, "the rotational spectrum of…" are equally problematic.

Topics *must* be approved by the instructor in advance.

Section of topics, nitty gritty: It is a big chemical universe, and lots of interesting things are going on out there. However, choosing an exact topic of interest can be a challenge. Good places to start looking are *Chemical and Engineering News* or *Chemistry World*. These are the trade journals of the American Chemical Society (ACS) and Royal Society of Chemistry, respectively, which often present topics of broad interest. If you have a better idea of where to start, looking at review articles, like those in *Chemical Reviews*, *Accounts of Chemical Research*, or *Chemical Society Reviews* are good sources. Of course, many journals present review articles as well as their primary source content. One of the pitfalls about review articles is that the content can, even in a few years, become dated. A valid strategy to avoid that is to start with a slightly older review article (say, 4–8 years old) and follow how the subject has advanced since then.

Paper topics: You will present to me and your peers in the class what your topic is. I will need a one-page summary of your topic with key references (at least three). A paper topic should be based on thesis rather than a description.

In class, the goal is to convey the thesis of your paper, what it is that you will be trying to prove. To compel the group you are presenting a valid thesis, you would want to state two to four

supporting key ideas, which derive from the literature. Naturally, your peers may have some questions for you about the topic.

Final paper: This is the culminating component of the course. It contains your thesis/argument, your reasons to support that argument, and the content on which you perform your analysis. The best plan is to use some reading to decide on what is your thesis, or argument, and make list of major supporting points. If your paper emulates the classic 'five paragraph essay' format (introduction/thesis, three supporting paragraphs, summary/conclusion), it is likely that you will address your thesis well. Creative formats are welcome—experiment in your writing—but do not forget to get the job done!

The write up should have several parts:

1) A title page with your name, the presentation/paper title, and abstract.
2) An abstract that is a 200-word summary of your topic and key points. Because your presentation and paper should be based on a main idea and supporting examples and content, that main idea and key support should be presented here.
3) The main write up text, which is limited to 10 double-spaced pages, including all figures and references.
4) Figures should be rendered legibly with appropriate software. Complex images may be directly copied from source material (with citation), but schemes are usually best reproduced in ChemDraw, and we will have a tutorial on this software. The department provides ChemDraw at no cost. (http://sitelicense.cambridgesoft.com/sitelicense.cfm?sid=2766).
5) Referencing and text should conform to ACS style. Consult with the *ACS Style Guide*, which is available digitally though UVM libraries (http://pubs.acs.org/isbn/9780841239999), as needed.

Drafts have much of the core content in place. The argument should be present and support for it; the argument and support are based on cited data from the literature. Drafts have the main ideas but often lack details, and they are not the first *n* pages of the paper.

Peer review: To better understand your own writing, we will read each other's work with an eye toward the goals of the assignment. While you are not grading your peers, you are providing them with constructive feedback that they will see. Therefore, we will develop criteria that we will consider important and agree how that is delivered.

Plagiarism: We will have a group discussion on the idea of plagiarism in class. While we are looking for you to provide some critical analysis, it is essential that you cite all ideas, content, and images that are used in your presentation and write up, which are not your own, and that you conform to UVM standards for academic honesty.

Grading: Your performance in this course will depend on four equally weighed factors:
1) The quality and completeness of your final paper. We will discuss criteria for paper and how the revision process will change your work.
2) The quality and completeness of your paper drafts.

3) The quality of your peer review in addressing the how the subject paper meets the assignment criteria.
4) The literature analyses, any homework, and the topic write-up.

Work turned in within 24 hours of the due date will be given 50% credit and after 48 hours no credit. I will accept and read work after 48 hours: Feedback on your writing is critical for this course and (more importantly) your development as a student and professional.

All items are due in class (at 2:20 pm) unless otherwise noted.

The instructor reserves the right to make changes, with notice.

Course Schedule

date	Topic/*assignment*
9/4	Literature searching I: Science, literature analysis basics, & ChemDraw
9/11	**Virtual meeting (via Teams)**: Literature searching II: Library resources
9/18	Group analysis of literature; evaluating sources.
9/25	*Literature analysis #1*; Effective writing
10/2	*Literature analysis #2*; Referencing and plagiarism
10/9	*Literature analysis #3*; Effective writing II
10/16	*Paper topics due*; topic discussion
10/23	Group analysis of literature
10/30	*Paper draft 1 due*; peer review criteria
11/6	*Peer reviews due*; recap of the review process
11/13	Group analysis of literature
11/20	*Paper draft 2 due*; Group analysis of literature
11/27	No class—Thanksgiving recess
12/4	**Virtual meeting (via Teams)**: *Final papers due*, group analysis of literature choosing topics for CHEM 182