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Inclusion in science: In the Department of Chemistry, we have agreed that sharing our thoughts on inclusive science is important as a part of our on-going commitment to equity in access and diversity throughout our field.

Here are my thoughts: First, you are welcome and belong in this class and in chemistry. Science *should* be inclusive because the activity itself is identity independent. Sadly, that is not true because people do science, and our disciplines have been built on privilege that has impacted access to education, information, resources, opportunity, and voice.

My education is a result of privilege and came at a time when science successfully dismissed inclusion (i.e., 'science is blind' baloney). Therefore, I am on a steep learn curve for creating and supporting an inclusive scientific enterprise. Nevertheless, I value all identities including race, ethnicity, sex, gender identity, ableness, nationality, sexual orientation, religion, economic status, age, among others, and I value how diverse groups of people and perspectives enrich our lives and, more germane, science.

I am committed to doing right by you and making this class welcoming and supportive of all. Please share with me directly or through an ally, if you need to be anonymous, if that is not the case. I am prepared to learn and do better, and I will not tolerate deliberate exclusion. UVM provides us a starting point about what an inclusive environment looks like in Our Common Ground.

Meeting time: Fridays, 2:20–3:10 PM in Lafayette L-210. We are fully in person, and it is imperative that we adhere to safety recommendation to keep ourselves and everyone in the class safe.

Office hours: Monday and Thursdays, 1:00–2:30 PM, and always feel free to make an appointment.
Please note: If you prefer engage remotely (phone, Teams), and I am happy to have a virtual 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.

<u>It is critical that everyone can share ideas and are respectful of each other and different opinions and interpretations</u>. 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 <u>current</u>, which would be demonstrated by significant activity in the last five years.
2. Your topic must be <u>chemical</u>. 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 share with 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 <u>limited</u> 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, <u>and we will have a tutorial on this software</u>. 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 <u>not</u> 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 additional 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.

Course Schedule

date	Topic/*assignment*
9/3	Literature searching I: Science, literature analysis basics, & ChemDraw
9/10	**At Howe 123**: Literature searching II: Library resources
9/17	Group analysis of literature; evaluating sources.
9/24	*Literature analysis #1*; Effective writing
10/1	*Literature analysis #2*; Referencing and plagiarism
10/8	*Literature analysis #3*; Effective writing II
10/15	*Paper topics due*; topic discussion
10/22	Group analysis of literature/career resources (IDP)
10/29	*Paper draft 1 due*; peer review criteria
11/5	*Peer reviews due*; recap of the review process
11/12	Group analysis of literature
11/19	*Paper draft 2 due*; Group analysis of literature
11/26	No class—Thanksgiving recess
12/3	Group analysis of literature
12/10	*Final papers due*, group analysis of literature choosing topics for CHEM 182

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

CHEM 181 Supplement: Support information and policies

Fall 2021

Technical support for students

Please read this technology check-list to make sure you are ready for classes.
https://www.uvm.edu/it/kb/student-technology-resources/
Our class does not use specialty software, but routine internet access on an updated browser and MS Teams are essential.
Students should contact the Helpline (802-656-2604) for support with technical issues.

Attendance Policy and Classroom Environment Expectations:

Students are active participants in class. Those who chose not to attend or participate suffer in their learning, which typically translates to lower performance in the course. Therefore, I do not measure active participation in class or attendance. However, if significant absence or non-participation occurs or those choices adversely impact the learning environment, I reserve the right to impose academic penalty.

Attendance and illness/isolation/quarantine:

I fully support you in taking care of yourself and supporting the health of the community. In-person students may need to quarantine, and any student may be unable to attend in-person or virtual class due to illness. I have some mechanisms in place to accommodate for this, but for me to fully accommodate, I need to you to contact me in advance with any challenges in attendance or coursework.

Intellectual Property Statement/Prohibition on Sharing Academic Materials:

Students are prohibited from publicly sharing or selling academic materials that they did not author (for example: class syllabus, outlines or class presentations authored by the professor, practice questions, text from the textbook or other copyrighted class materials, etc.); and students are prohibited from sharing assessments (for example homework or a take-home examination). Violations will be handled under UVM's Intellectual Property policy and Code of Academic Integrity.

Tips for Success:

Course-specific study/preparation tips
Here are a few resources for students on remote/online learning:

- Checklist for success in https://learn.uvm.edu/about/support-for-students/checklist-online-credit-courses/
- Academic support for online courses: https://www.uvm.edu/academicsuccess/online-learning-student-resources-remote-instruction
- 30-minute webinar on online learning success (Mar 2020): https://www.youtube.com/watch?v=Xp_MYsqQyvE

Helpful resources other than the professor (e.g., Undergraduate/Graduate Writing Center, Supplemental Instruction, Learning Co-op tutors, supplemental course materials)

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing ADA accommodations should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly recommended to discuss with their faculty the accommodations they plan to use in each course. Faculty who receive Letters of Accommodation with Disability Related Flexible accommodations will need to fill out the Disability Related Flexibility Agreement. Any questions from faculty or students on the agreement should be directed to the SAS specialist who is indicated on the letter.

Contact SAS:
A170 Living/Learning Center;
802-656-7753
access@uvm.edu
www.uvm.edu/access

Important UVM Policies

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to

observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time. https://www.uvm.edu/registrar/religious-holidays

Academic Integrity:

The policy addresses plagiarism, fabrication, collusion, and cheating.
https://www.uvm.edu/policies/student/acadintegrity.pdf

Grade Appeals:

If you would like to contest a grade, please follow the procedures outlined in this policy:
https://www.uvm.edu/policies/student/gradeappeals.pdf

Grading:

For information on grading and GPA calculation, go to https://www.uvm.edu/registrar/grades

Code of Student Conduct:

http://www.uvm.edu/policies/student/studentcode.pdf

FERPA Rights Disclosure:

The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.
http://catalogue.uvm.edu/undergraduate/academicinfo/ferparightsdisclosure/

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community:

Center for Health and Wellbeing:
https://www.uvm.edu/health

Counseling & Psychiatry Services (CAPS)
Phone: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at https://www.uvm.edu/studentaffairs

Final Exam Policy:

The University final exam policy outlines expectations during final exams and explains timing and process of examination period. https://www.uvm.edu/registrar/final-exams

Alcohol and Cannabis Statement:

The Division of Student Affairs has offered the following statement on alcohol and cannabis use **that faculty may choose to include, or modify for inclusion,** in their syllabus or Blackboard site:

Statement on Alcohol and Cannabis in the Academic Environment

As a faculty member, I want you to get the most you can out of this course. You play a crucial role in your education and in your readiness to learn and fully engage with the course material. It is important to note that alcohol and cannabis have no place in an academic environment. They can seriously impair your ability to learn and retain information not only in the moment you may be using, but up to 48 hours or more afterwards. In addition, alcohol and cannabis can:

- Cause issues with attention, memory and concentration
- Negatively impact the quality of how information is processed and ultimately stored
- Affect sleep patterns, which interferes with long-term memory formation

It is my expectation that you will do everything you can to optimize your learning and to fully participate in this course.