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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 ongoing commitment to equity in access and improving 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 supporting an inclusive scientific enterprise. I seek input and accept feedback on how to do that better. Nevertheless, I value all identities including age, ethnicity, sex, gender identity, ableness, nationality, sexual orientation, religion, economic status, among others, and I value how diverse groups of people and perspectives enrich our lives and, more germane, science. Science shows that diverse teams solve problems better and anything short of inclusion fails to meet our goals as a university and scientist.

I am committed to doing right by you and making this class welcoming and supportive of all.

The course has two teaching assistants who are present in the laboratory to maintain a safe environment. They also will be aiding in assessing the first three criteria of the course. Most important, both are Ph. D. candidates in the department, each with multiple publications. You have a good deal to gain by engaging with your TA about chemistry in general and their professional experience as much as course material. Their office hours will be by appointment. Please contact them by email for a meeting.

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**Required Course Materials** There is reading associated with this course, and that will be provided in class or via Brightspace. Expect reading on a weekly basis.

Any laboratory course at UVM has required materials, and the most important is your personal protective equipment (PPE). You will need safety glasses and a lab coat, which are shared with CHEM 1500 laboratory, both of which can be found at the Bookstore. If you choose WR REWDLQ WKHVH IURP DQRWKHU VRXUFH WKH\ PXVW EH

You will also need a laboratory notebook like your PPE, this can be shared with CHEM 1500. Laboratory notebooks need numbered pages K D Y H G X S O L F D W H <sup>3</sup> F D U E R Q O H V V turned in at the end of each session. Such notebooks can also be obtained at the Bookstore. We will discuss laboratory notebooks in lab.

#### Course description

This course is deliberately corequired with CHEM 1500

The second component of the course will tap into your most adventurous and creative. We will perform research. Making compounds can be research, but our effort will be focused on specific questions, running curiosity and perhaps a bit of luck. We will ask two different, significant questions across the three sections of CHEM 1410 and see what answers we can find. These will be questions of current interest in chemistry, and if we can obtain high quality, reproducible results, your work may be a part of peer-reviewed publication. Naturally, we would give credit where it is due if this happens.

Therefore, a student successfully completing CHEM 1410 should be able to

1. Execute new reactions and procedures in a safe and reproducible manner.
2. Identify risks and hazards in the chemical laboratory and apply rational strategies to mitigate them.
3. Formulate a testable hypothesis and execute experimentation to test this hypothesis.
4. Make observations of chemical reactions and collect data.
5. Report on data and observations verbally and in written form.
6. Articulate questions about chemical concepts.

Research is not a solo operation. Unfortunately, we have aggrandized individuals, often ignoring contributions of others, to tell an individualistic story of research. Because the cannon of scientific understanding is built on past discovery, all science is a team sport. In modern times, the most interesting and pressing questions are too complex for individuals to solve alone. It is essential that you approach this class, your learning in chemistry, and science ready to be part of a team. As such, it is critical that everyone can share ideas and are respectful of each other and different opinions and interpretations. Y H U \ R Q H \ V F R O M U S E M I O N O F S C I E N C E S interpretation rather than being right. All voices must be heard.

Literature analysis: We will start to look at the chemical literature and use it as a tool to our advantage. 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. We will look at the literature for what it can tell us and be prepared to question what we read.

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you on a process to being able to use it to your advantage.

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 you use and that you conform to UVM standards for academic honesty. You will also be asked to write reflections. These are your own work, and must be composed on your own. We will also talk about the ethics (or lack thereof) of using AI or other tools to generate words when you should.

Grading: Your performance in this course will depend on four weighed factors

1. Attendance, 20%. This is 0 612 7 > u3inwhr2t(tor)-8(y1820( )-9(e)4(ourse)6( )- G [( ) Td0wn /P (

2. Laboratory notebook, 30%. You are expected to plan your work in advance in your notebook\*, then use this tool to document your work, note observations, and compile data. We will talk about developing a high quality notebook
3. Participation, 10%. The class will be discussing various ideas and developing plans, particularly in asking new questions. Every member of the class is expected to participate in these discussions. An active participant in the class is also attentive to lab activities, active in lab work, and conducts their lab work safely.
4. Reflections, 40%. I will prompt you to reflect on the experimental work in lab, before or after it is done aspects of the science at hand, or related topics in the course through reflections that will be assigned and due by the beginning of the following lab. These may appear up to weekly for the course, and selected examples are shown in the schedule. The clarity, quality of writing, and content will be key factors in evaluating reflections. These will typically be assigned with an upper limit for length. I will not be grading by volume!

\*Lack of advanced planning can put you or your labmates at risk. Students who cannot provide evidence of advanced preparation for safe experimental work may be expelled from the laboratory.

To start I will use the following scheme to determine course grades: 93-100%, A = 90-92%, B+ = 87-89%, B = 83-86%, B- = 80-82%, C+ = 77-79%, C = 73-76%, G = 70-72%, D+ = 67-69%, D = 63-66%, D- = 60-62%, F <60%.

These absolute percentage bins can be problematic. I assure you now that students who are safely active in lab, keep good notes and records, and are thoughtful in their reflections will perform well in the course. Therefore, I may change the bins to make sure students who meet those criteria are rewarded with appropriately high grades.

Late policy: 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 writing is critical for this course and (more importantly) your development as a student and professional.

All items are due in class (start) unless otherwise noted.

Course Schedule

11	Research project, part 3
12	Research project, part 4; reflection on research reactions
13	No class <sup>2</sup> ; Thanksgiving recess
14	Organic exam; no lab
15	Research project, part 5; reflection on literature
Exam week	No lab; final reflection on research reactions

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

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## Technical support for students

Please read this technology checklist to make sure you are ready for classes.

<https://www.uvm.edu/it/kb/student-technologyresources/>

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 (802-262-2604) for support with technical issues.

## Attendance Policy and Classroom Environment Expectations:

Students are active participants in class. Those who chose not to attend will not participate.

classroom. The UVM Code of Classroom Conduct will be maintained by all students.

### Attendance and illness/isolation/quarantine:

I fully support you in taking care of yourself and supporting the health of the community. Any student may be unable to attend 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. Please use all available resources to ensure your mental and physical health. Should a significant issue arise, a medical provider should inform the Dean's office, which will share that a medical issue has occurred but no personal details. I never need to nor will ask for any details of your medical history.

### Intellectual Property Statement/Prohibition on Sharing Academic Materials:

Students are prohibited from publicly sharing or selling academic materials that they did not author, which can include the class syllabus, outlines or class presentations authored by the professor, practice questions, text from the textbook or other copyrighted materials, etc,

## Lived Name and Pronoun Information

The UVM Directory includes fields for indicating your lived name and your pronouns. Lived names (preferred names, names in use) are names that an individual wants to be known by in the University community. Entering your pronouns is strongly encouraged to help create a more inclusive and respectful campus community. To update your information, login to the UVM Directory. A preview box will allow you to see how this information will appear in other systems used on campus such as Microsoft Teams and Blackboard.

## Research and Citation Help

For help selecting research topics, finding information, citing sources, and more, ask a librarian. The UVM Libraries are eager to help. You may ask questions by phone, email, chat, or text, or make an appointment for an individual consultation with a librarian.

Howe Library <https://library.uvm.edu/askhowe>

Dana Medical Library <https://dana.uvm.edu/help/ask>

Silver Special Collections Library <https://specialcollections.uvm.edu/help/ask>

## Course Evaluation:

There will be an opportunity to provide formal, anonymous feedback on the course at the end of the semester. From a policy standpoint, it is expected that you complete the survey. Such survey data is taken seriously.



Helpful resources other than the professor include Undergraduate/Graduate Writing Center  
Supplemental Instruction, Learning-Cp tutors, but I am helpful, too.

### 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

## Grading:

For information on grading and GPA calculation, goto <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 (603-255-380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website <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/finalexams>

## 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:

- x Cause issues with attention, memory, and concentration
- x Negatively impact the quality of how information is processed and ultimately stored
- x 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 go fully participate in this course.

## General statement regarding potential changes during the semester:

<http://catalogue.uvm.edu/>

The University of Vermont reserves the right to make changes in the course offerings of delivery, degree requirements, charges, regulations, and procedures contained herein as educational, financial, and health, safety, and welfare considerations require, or as necessary to