Chemistry 318, Current Topics in Chemistry

Section B (10545), Inorganic Chemistry
University of Vermont, Spring Semester, 2022

General Information

Instructor: Prof. Chris Landry
E-mail: christopher.landry@uvm.edu
Office: Innovation E222
Phone: 656-0270
Meeting Time: Fridays, 10:50-11:40 am
Meeting room: Rowell 115
Office Hours: Tues 1:00-2:30pm; Fri 2:00-3:30pm

The instructor reserves the right to change everything, with notice.

Course Description

Learning goals: From the Chemistry Department Ph.D. and M.S. learning goals: "To develop the ability to critically analyze the chemical literature".

Learning outcomes: The primary goal of this course is to introduce you to topics of current interest in the field of inorganic chemistry. Our mechanism for accomplishing this goal is to have you select an article from current literature (about the past 6 months or so) and present it to the other inorganic graduate students. This course is also a part of your Advancement to Candidacy requirements; that is, successful completion of this exercise is a required component of your graduate degree. In this sense, it is to your advantage to select articles that demonstrate your mastery of a broad range of inorganic topics.

A secondary goal of the course is to provide an avenue by which you can improve your oral communication skills. Clearly, giving effective presentations is not only important for success in future courses—it's also important when you are interviewing for jobs. In the "real world" of industrial and academic chemistry, you will be expected not only to generate positive data but to explain its significance to others. This last skill—explaining why we should care about the article you have selected—is an essential part of your success in this course. You should be prepared to answer detailed questions about the article and to provide a critical assessment of the value of the information in the article.

Selection of articles: First-year grad students are pretty much free to select any inorganic articles that are of interest. For upper-level students, assuming that you are already reading and presenting articles that are directly related to your own research in group meetings or as part of your work, you should select articles that are not related to that research (because that would not serve the educational goal of mastering a variety of inorganic topics). I would strongly encourage you, in fact, to challenge yourself by selecting articles from a completely different research area than your current research encompasses. Also, your peers are learning about new topics as well; if everyone selects articles on the same topic, no one is learning anything new after the first presentation. To this end, you should not select an article that is too similar to another one presented earlier in the semester. There are enough topics in the field of inorganic chemistry that this should not be a problem. Finally, while it is acceptable to review communications, there is usually not enough information for a reasonably detailed presentation. I would encourage you to focus primarily on articles.

All articles must be approved at least 24 hours in advance of your presentation. Missing this deadline will initially result in rescheduling to a later time in the semester (if possible), but if that is not possible you cannot be assigned a satisfactory grade.

Preparation: You should not have to devote a huge amount of time preparing for your presentation. If so, you have probably selected an article that is too long or too detailed. In general, you should plan for 10-15 slides including background material as necessary. The time of your presentation will vary based on questions, but if you were to go straight through without interruptions it should take about 20 minutes. Bullet lists or overly wordy slides are to be avoided; in general, it is much more effective to simply put a piece of data, a reaction scheme, or a cartoon on a slide with no words and then explain it. Also, save time by taking figures directly from the original source (i.e., scanning or cutting and pasting electronically) as much as possible. On the other hand, you may sometimes find it to your advantage to draw a reaction scheme that is **not** in the article, to clarify what is going

on. Remember one of the cardinal rules of presentations: if you are not prepared to explain something, then you should leave it out of your talk. It's worth taking the time to read through the experimental methods so you can understand how experiments were performed.

All information must be properly cited (typically in small print at the bottom of the slide, in ACS format). You should include the complete citation, the authors' names, and the article's title on your first slide. Avoid using web citations.

Discussion: As the presenter, one of your jobs is to moderate discussion of your article. While it is possible to do this by posing specific, open-ended questions to the audience, they will usually be less familiar with the article than you (or won't be willing to answer the question). Another way is to provoke questions and/or discussion indirectly by purposely leaving out information that is glaringly obvious to the group. Inevitably, someone will bring up this point, and because you are already aware of it you can use it as the start of a discussion. Of course, all attendees are expected to be active participants in the discussion: to ask questions, raise alternate view points, and to mention other related literature.

Grading: This course is graded on a "satisfactory/unsatisfactory" (S/U) basis. Your grade is determined in a somewhat subjective manner but will depend on the following four factors: (1) the quality of your presentation, determined both from your slides and from your verbal discussion of them; (2) your ability to facilitate discussion; (3) your participation in discussions as an audience member; (4) attendance. I will generally be in touch with you after your presentation to give you an idea of where you stand.

Communication: I guarantee that I will be available during office hours. If for some reason I cannot be available, I will send a message to the class. Outside of office hours, e-mail is generally the best way to get in touch with me. I am available by e-mail from 8am to 6pm Monday – Thursday, and from 8am to 3pm Friday. If you send me a message during this time, I will try to respond within one business day.

Inclusion: While the field of chemistry has not always been inclusive and diverse, our current chemistry community increasingly reflects the world outside of the laboratory. Science and scientists are not immune to bias, but we can make ourselves aware of it and actively work against it in our everyday lives. To this end, I would encourage you to take authorship into consideration when you select articles to present. While high-quality research should be the primary criterion for choosing an article, it would be interesting to hear about research from groups that are traditionally underrepresented in chemistry based on race, gender, or other reasons. If you can find out more about those authors and can discuss them directly in your presentation in addition to the scientific content, that would be very welcome. Finally, it is my intention to create an environment where all beliefs are valued. No one should feel afraid to state their opinion, and speakers should feel confident and supported by the group when presenting their chosen article. If you experience any form of bias in our class or at UVM, please feel free to use me as a resource. A list of resources focused on diversity, equity, and inclusion are included on the last page of this syllabus.

Suggested journals

General interest journals
Angewandte Chemie
Chemistry. A European Journal
Chemistry. An Asian Journal
Chemical Communications
Chemistry Letters
Journal of the American Chemical Society
Nature
Nature Chemistry
Nature Materials
Science

More specialized journals
Chemistry of Materials
Dalton Transactions
European Journal of Inorganic Chemistry
Inorganic Chemistry
Inorganic Chemistry Communications
Journal of Bioinorganic Chemistry
Journal of Catalysis
Journal of Materials Chemistry
Journal of Molecular Catalysis
Journal of Organometallic Chemistry
Langmuir
Organometallics
Polyhedron

This is not a complete list! Take articles from wherever you see fit. You may wish to avoid lengthy reviews (*Acc. Chem. Res., Chem. Rev*. or *Chem. Soc. Rev*.).

Division of Diversity, Equity, and Inclusion https://www.uvm.edu/diversity
The Division of Diversity, Equity, and Inclusion believes excellence should be inclusive of the entire University of Vermont (UVM) community and is steadfastly committed to this belief. Every day, our Division strives to make our work accessible, affirming, and action-oriented to help ensure excellence is inclusive of everyone.

UVM Prism Center https://www.uvm.edu/prism
The Prism Center serves the diverse queer and trans communities at the University of Vermont. We support and empower lesbian, gay, bisexual, transgender and queer students, as well as students whose identities fall in between or expand beyond those categories, and work to create a campus community where people of all sexual and gender identities can thrive.

Interfaith Center https://www.uvm.edu/interfaithcenter
Each of us engages those questions differently, perhaps through a religious tradition, philosophy, or spiritual practice. No matter how you make meaning of your life, you are welcome at the Interfaith Center for reflection, spiritual practice, education, and community building.

Mosaic Center for Students of Color https://www.uvm.edu/mcsc
The Mosaic Center for Students of Color (MCSC) Vision is to create a diverse and rich community of empowered, engaged, and enthusiastic students of color at UVM. We fully support the holistic development of self-identified students of color so that they can obtain their goals for academic achievement, personal growth, identity formation, and cultural development.

Women & Gender Equity Center https://www.uvm.edu/wagecenter
The UVM Women & Gender Equity Center cultivates joyful community while advancing gender equity across identities. We envision a brave, diverse, and equitable learning environment for all members of the UVM community. We provide advocacy services for those in our community who have experienced sexual or intimate partner violence, and strive to provide programming, education, and events that ask our community to explore the intersections of their gender and other identities.