

# Chemistry Literature & Research

CHE 3810

Fall 2018

Wednesday 9am-9:50am (room SI 3095)

Course Website: <http://BonhamChemistry.com/>

Instructor: Dr. Andrew J. Bonham Office Hours: Weds 10-11; Thurs 12:30-2; or <http://Bonham.YouCanBook.Me>

Contact: [abonham@msudenver.edu](mailto:abonham@msudenver.edu) Office: SI 3062A

## What is the objective of this course?

This course presents primary research literature and resources for critical consideration in the fields of chemistry and biochemistry. Students in this course focus on analysis of scientific literature and scientific seminars, particularly the evaluation of chemical analysis techniques and comparison of data presentation methods. In this course, you will learn how to think and work as a professional chemist. We will be utilizing primary literature, group discussion, research critiques, and invited speakers to provide a learning environment reminiscent of the graduate school experience and the world of professional research chemistry.

## What format will the class take?

Our advanced approach to learning to understand and evaluate chemistry literature only works if all of the students take ownership of the class, approaching it in a dedicated and professional manner. The ideal format for this course is a **seminar**: an open discussion where instructional responsibilities are shared equally among all participants. Since most students at this level have had little experience with seminar-style courses, the format of this course will be a compromise. At the beginning of the semester, I will present lectures and guide discussion formally. As the semester progresses, I encourage and expect all of you to move toward individual participation and course guidance. I will continue to act as a troubleshooter, guide, and resource-of-last-resort, but will expect different students to take the role of seminar leader for different topics. By the end of the course, our time will consist entirely of student-led discussions. This is a great chance to learn how to be a professional scientist!

## How will I participate?

There are many ways you will be called upon to participate in this course. Science is, by its nature, a social activity-- knowledge is only gained by collaboration and sharing the fruits of our research. Some activities that you may do for this course:

- Guiding a discussion / critique of a paper that we have read as a class as seminar leader
- Contributing your unique insights in short reports / summaries of visiting speaker research agendas, progress, and future plans
- And, of course, active participation in class discussions

## What can you expect from the instructor?

I will guide relevant, discussions that encourage class participation. I will provide clear assignments, clear and fair grading policies as outlined in this syllabus, and relevant feedback. I will offer reasonable availability outside of class (e.g., office hours). Through my actions, I will encourage your understanding and enjoyment of the science of chemistry.

## Required Seminar Attendance:

You are required to attend at least 3 of the 7 seminars in the Fall 2018 Semester, and attendance of all seminars is encouraged. **Failure to attend at least 3 seminars will result in a failing grade in this course.**

## Reading:

We will assign relevant papers related to our seminar speakers for each course. Please thoughtfully read these papers ahead of class. Reading scientific literature is difficult and time consuming, and we will work on effective reading strategies together!

## Class Participation:

Regular attendance and involvement in the classroom learning process is critically important to understanding the nuances of scientific literature, and your class participation will constitute a 20% participation portion of your grade. **Three or more unexcused absences will result in a failing grade for this course.** Excused absences include documented illness, injury or death of family and close friends, and other reasons of high import. If in doubt, contact the instructor as early as possible.

**Syllabus Changes and Policy:** Any changes in this syllabus I may deem necessary during the semester will be announced in class and made available in writing. I reserve the right to revise the syllabus and grading policies at any time.

## Final Exam:

A one-hour final exam, drawn from material discussed during the semester, will be given during finals week.

### **Grade Calculation & Policies:**

Class Participation	20 %
Discussion Leadership	20 %
Seminar Response Papers	40 %
Final Exam	20 %
Total	100 %

**Points are tentative and subject to change by the instructor.**

Grades will be available at the next regularly-scheduled course meeting. For Finals, final grades will be available from me in person on Friday of finals week. Grades will be available by web and kiosk on after the end of the term at <http://msudenver.edu/studenthub/>. **FERPA policies prohibit me from releasing your grades via phone or email unless you register with the Registrar's office and obtain a non-identifying security code.**

**CHE 3810 Learning objectives:** Upon completion of this course the student should be able to:

1. Concisely summarize key findings from primary scientific literature articles.
2. Evaluate the appropriateness of different chemical analysis techniques.
3. Compare and contrast different methods of data presentation, such as figures, tables, and schematics.

### **Administrative Syllabus policies**

Students are responsible for full knowledge of the provisions and regulations pertaining to all aspects of their attendance at MSU Denver, and should familiarize themselves with the policies found on the following web site:

<https://www.msudenver.edu/handbook/academicpoliciesforstudents/>

Syllabus policies for the College of Letters, Arts, and Sciences can be found at

[https://msudenver.edu/media/content/collegeoflettersartsandsciences/forms/CLAS\\_Syllabus\\_Policies\\_Fall2018\\_073118.pdf](https://msudenver.edu/media/content/collegeoflettersartsandsciences/forms/CLAS_Syllabus_Policies_Fall2018_073118.pdf)

***If you have any difficulty accessing the hyperlinks in this document, please inform the instructor.***

### **Advising**

The Chemistry department has advising hours for all faculty (and I'm happy to give advice in office hours), but by far our best resource is our dedicated academic advisor, Natalie Keller ( [nkelle10@msudenver.edu](mailto:nkelle10@msudenver.edu) ).

Week	Date	Topics & Deadlines
1	Aug 22 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• Introduction to Discussion and Literature</li> </ul>
2	Aug 29 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Chemistry &amp; Environmental Decontamination</li> <li>• <b>Seminar: Aug 31: Mr. Franciso Cruz (EPA)</b></li> </ul>
3	Sept 5 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Reading Literature outside your expertise</li> </ul>
4	Sept 12 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Topic TBA</li> <li>• <b>Seminar: Sept 14: TBA</b></li> </ul>
5	Sept 19 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Writing effective summaries and critiques</li> </ul>
6	Sept 26 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Nanoparticles and Biosensors</li> <li>• <b>Seminar: Sept 28: Dr. Murielle Watzky (UNC)</b></li> </ul>
7	Oct 3 <sup>rd</sup>	<ul style="list-style-type: none"> <li>• Topic TBA</li> </ul>
8	Oct 10 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Polymer &amp; Catalytic Chemistry</li> <li>• <b>Seminar: Oct 8<sup>th</sup>: Jed Wilson (CSU)</b></li> </ul>
9	Oct 17 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Topic TBA</li> </ul>
10	Oct 24 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Topic TBA</li> <li>• <b>Women in STEM Conference Oct 27th</b></li> </ul>
11	Oct 31 <sup>st</sup>	<ul style="list-style-type: none"> <li>• Headspace GC-MS &amp; Analytical Methods</li> <li>• <b>Seminar: Oct 30: Daniella Hernandez (MSU Denver with Dr. Hill)</b></li> </ul>
12	Nov 7 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Topic TBA</li> </ul>
13	Nov 14 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Inorganic Photocatalysis</li> <li>• <b>Seminar: Nov 16: Dr. Matthew Shores (CSU)</b></li> </ul>
Fall Break	Nov 19 <sup>th</sup> to Nov 23 <sup>rd</sup>	---
14	Nov 28 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Disturbance Ecology and Community Response</li> <li>• <b>Seminar: Nov 30: Dr. Emily Holt (UNC)</b></li> </ul>
15	Dec 5 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Last Day to turn in seminar reports! → by start of class</b></li> </ul>
FINAL	TBA during Dec 10 <sup>th</sup> to Dec 14 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Final Exam</b></li> </ul>

## Resources for CHE 3810 Chemistry Literature & Research

- Course Website: <http://BonhamChemistry.com/>
- MSU Denver Tutoring Center: <https://msudenver.edu/sas/tutoringcenter/>
- MSU Denver Writing Center: <https://msudenver.edu/writectr/>
- Good General and Organic Chemistry Review: <http://www.chemguide.co.uk/>
- Learn how to Program Computers in a Biochemical context (tutorials by Dr. Bonham):
  - Making a buffer calculator: <http://bonhamchemistry.com/resources/interactive-python/>
  - Fitting non-linear curves: <http://bonhamchemistry.com/resources/code-tutorials/>
- Read Primary Literature! <http://scholar.google.com/>