

Chem 419/519: Bioinorganic Chemistry

Fall 2021

TR 11:00 am – 12:20 pm; Zoom <https://cwm.zoom.us/j/96473762300>; ISC 2018
Deborah C. Bebout; ISC 2039; 1-2558; dcbebo@wm.edu; Office Hours: By appointment

General course overview (from Undergraduate Course Catalog):

419/519. Bioinorganic Chemistry

Fall (3) Bebout. Prerequisite: CHEM 314 or BIOL 314 or equivalent.

An intensive examination of current research approaches in the field of bioinorganic chemistry. Students will gain experience in reading and critically analyzing articles from the primary literature.

Course overview

TOPIC: Bioinorganic chemistry

FORMAT: Modified research seminar with mandatory attendance

REQUIRED TEXT: Biological Inorganic Chemistry: A New Introduction to Molecular Structure & Function, 2nd ed, Crichton, 2012 (Textbook is available at no cost from Swem Library, therefore purchase is entirely optional)

INSTRUCTOR ROLE:

- Thoughtful design of an engaging interdisciplinary course
- Preliminary lectures on fundamentals
- Select all reading materials
- Provide feedback on visual aids
- Prepare evaluative exercises
- Grading

STUDENT ROLE:

- Be present and engaged in class each day
- Review daily reading assignments *before* class in sufficient detail to complete short quiz or participatory exercise
- Present instructor selected research articles to the class in an engaging manner on the assigned days
- Participate in class discussions
- Provide thoughtful peer reviews
- Develop a thorough understanding of the methods used to study metal ions in biological systems

COURSE STRUCTURE

- In-person format with electronic resources
- Interactive – Shared responsibility for intellectual content & skills development
- Professional development focus
 - Individual communication skills
 - Team skills
 - Presentation strategies
 - Software Manipulations

Technology requirements

Enrolled students are expected to have a computer with webcam and microphone in the event that meetings by Zoom becomes necessary for any reason.

Course related electronic resources:

1. <https://blackboard.wm.edu>: Syllabus, various course documents, lecture capture (Panopto), HonorLock
2. <https://www.polleverywhere.com>: The Poll Everywhere student response system; occasionally used for interactive lecture elements and attendance (informative & community building, not punitive).
3. <https://software.wm.edu/>: Assorted useful software that is either free or university licensed including Adobe Acrobat Reader DC; DUO Mobile; Global Protect; Google Chrome; G Suite Apps; Office 365; Panopto; Zoom.
4. <https://www.gimp.org/>: Free and open source GNU Image Manipulation Program – handy for cropping, recolorization, etc.

CHEM 419W

Students interested in using CHEM 419 to complete the writing requirement in Chemistry are REQUIRED meeting with me before noon Friday, September 10th. If you are doing undergraduate research in chemistry, consider completing the writing requirement through CHEM 409W or CHEM 496W. I do not assist in fulfilling the major writing requirement outside Chemistry.

Grading Policies

Grades will be calculated as follows and converted to normal letter grades (A > 94%; 94-90% A-; 90-87% B+ etc.):

Component	Undergraduate (CHEM 419)	Graduate (CHEM 519)
Class participation†	15%	15%
Assignments & Quizzes†	25%	25%
Short Paper Group Presentation	10%	10%
Longer Paper Group Presentation	20%	20%
Research Paper	Not applicable	5%
Final	30%	25%
Total	100%	100%

† Point assignments will be arbitrary due to Blackboard constraints and/or convenience. Therefore, final grades will be calculated based on percentages/normalized to the indicated overall percentages. Advise paying attention to normalized (% of max) scores instead of absolute score values.

Due dates and deadlines in this class are real. Penalties for unexcused lateness, absences and late or missing work will typically be at least one full letter grade for the assignment (10%) and substantially higher for the final (2%/minute).

Communications Policy: E-mail and Blackboard will be the primary means of communication used by the instructor. Students are required to provide a phone number for urgent matters pertaining to one individual.

Office Hours: Please request appointments by e-mail. *Include a range of possible meeting times.* I have regular meetings TR 3:30-5:00 pm and W 9:00-10:30 am. Students with imminent presentations have priority.

PRELIMINARY COURSE OUTLINE: * indicates flipped classroom with associated video and integrated quiz questions

Module	Dates	Theme	Crichton Chapters	Article #	Professional Development
1	Sept 2	Scope of Bioinorganic Chemistry	1* (38:17)	–	Community Building
	Sept 7 Sept 9	Intro to the Bioinorganic Chemistry Literature 9/7: Coordination & Design; 9/9: Present	2,4*(1:01:19)	1	Coordinated Independent Learning
	Sept 10	<i>Noon deadline for meeting with me regarding CHEM 419W; End of add/drop period (11:59 pm)</i>			
	Sept 14 Sept 16	Expanding the Periodic Table of Life (EPTL) EPTL (cont.) Release of Shorter papers begins	6* (1:04:02)	2	Constructive Criticism
2	Sept 21 Sept 23	Completing the Bioinorganic Chemistry Toolbox Infographic Mini-presentations	3*(1:05:06)	3	Designing Slides
	Sept 28 Sept 30	Metal Assimilation, Storage & Homeostasis (CJ) 9/28 Prof. Bebout presents; 9/30 mini-presentations	7,8		Story Development
3	Oct 5 Oct 7	Zn & Fe (OO) Shorter Paper Presentation	12	4	Team work & Presentation skills
	Oct 12 Oct 14	Shorter Paper Presentations		5.6	Team work & Presentation skills
	Oct 19	Fall Break			
	Oct 21	Cu, Ni & Cu (NTT); LPGP Distribution begins	13		Extracting visual clues
4	Oct 26 Oct 28	Environmental issues (CP) <i>Search for final article!</i>	14,15	7	Self-Reflection
	Nov 2 Nov 4	Film Studies	18,23		Grazing the literature
	Nov 9 Nov 11	Bioinorganic Chemistry in Medicine & Disease (TB) Presentation Coordination; <i>Final article approval</i>	20-22		Audience engagement
5	Nov 16 Nov 18	Flex day Longer Paper Presentations	---	8	Time Management
	Nov 23	Longer Paper Presentations	---	9	
	Nov 25	Thanksgiving			
	Nov 30 Dec 1	Final article highlights Longer Paper Presentation	---	10	Extracting Highlights/ Accessible Science
	Dec 7 Dec 9	Longer Paper Presentations Semester in Review (CTF)	---	11	
Final	Dec 20	Final PowerPoint Due at 5:00 pm		Final	Punctuality

Color coded dates: **Mini presentations by all**; **Article presentations with quiz (Prof. Bebout presents 9/14, 9/21 & 10/28; assigned groups present on other days; quiz due one week in advance when presenting & 11:00 am when not presenting)**; **In class review assessments**

OTHER POLICIES

Student Accessibility Services

William & Mary accommodates students with disabilities in accordance with federal laws and university policy. Any student who feels they may need an accommodation based on the impact of a learning, psychiatric, physical, or chronic health diagnosis should contact Student Accessibility Services staff at 757-221-2512 or at sas@wm.edu to determine if accommodations are warranted and to obtain an official letter of accommodation. For more information, please visit www.wm.edu/sas.

Diversity & Inclusion Vision Statement

The College of William & Mary values and actively nurtures an environment of diversity and inclusiveness where every individual, regardless of how we may differ – for example, but not limited to, with regard to race, religion, gender, ethnic origin, age, socioeconomic status, political preferences, physical abilities, or sexual orientation – is embraced, respected, and afforded the same opportunity to grow, to succeed, and to contribute to William & Mary's success.

Honor Code

All students are expected to follow the W&M Honor Code. For more information, please see:

<https://www.wm.edu/offices/deanofstudents/services/communityvalues/honorcodeandcouncils/honorcode/index.php>.

Use of unauthorized materials, participating in unauthorized collaboration with other individuals and plagiarism will result in referral to the Honor Council. All submitted work is expected to be your own and original with substantial differences in vocabulary and structure from the work of others.

HonorLock

In the event of a substantial period of online instruction, I reserve the possibility of using HonorLock if deemed necessary.

Attendance

Attendance and engagement are mandatory for all students during the scheduled class time on Tuesdays and Thursdays (TR) from 11:00 am to 12:20 pm health and weather permitting. Meeting together will help establish community and create a supportive environment for skill development. In the event of individual absences for prudent and compelling reasons, please contact me as soon as possible. Zoom in and out class structure is planned whenever there are students required to self-quarantine. Students missing class remain responsible for all assignments with reasonable deadline accommodations. Multiple unexcused absences will result in a grade penalty.

Zoom Etiquette

When meeting remotely by Zoom, cameras are to be on unless instructed otherwise. Please consider facing a window (or sitting in front of another source of diffuse light) with the camera at eye level. Please avoid strong backlight. If possible, choose a non-distracting location away from other people and loud noises. Microphones status will vary depending on the nature of the class activity. It is expected that all students will focus on course-related activities TR 11:00 am to 12:20 pm. After the first warning, each class period during which distracted behavior is noted by the instructor will result in a 1%/day overall grade penalty (maximum penalty 25%).

Zoom Recordings

All class meetings TR 11:00 am to 12:20 pm are subject to Zoom recording to ensure accessibility and accountability. Recordings will be made available to students in the event of absence without Zoom access for any reason. Video viewing will be required for excused absences and may include make-up activities as determined to be appropriate by the instructor.

Use of Electronic Devices TR 11:00 am to 12:20 pm class period

Since the delivery mode of CHEM 419 may vary significantly over the course of the semester, appropriate use of electronic devices during our class meetings TR 11:00 am to 12:20 pm can also be expected to vary considerably. Please be prepared with a charged cell phone and/or internet connected computer with webcam and microphone for all class meetings. When meeting in ISC 2018, it will be possible to charge most electronic devices. Electronic device use should be limited to course-related activities during the class period. Alternative uses of electronic devices during the class period will result in a 1%/day overall grade penalty (maximum penalty 25%) if noted by the instructor.

Health Safety Behavior

When meeting face-to-face, well-fitting masks covering both nose and mouth are required. Bandanas and neck fleece are unacceptable. Since there is only one entrance to ISC 2018, students entering the room first should sit in the back to facilitate social distancing. Please affirm the University's Healthy Together Community Statement daily prior to face-to-face meeting.

Privacy

In accordance with FERPA, students are afforded reasonable expectations of privacy. The assignments for this course include a series of group activities and projects. Students who choose not to let me share their phone number and/or e-mail address on Blackboard/Contact Information are responsible for making sure their peers are able to effectively coordinate with them. It is expected that students will not share personal information about their peers with other individuals.

Intellectual Property

Course materials including compiled lectures, audiovisual materials, course assignments, etc. are my intellectual property and contain copyrighted material only to be used in a non-profit educational manner. Course materials may not be disseminated to individuals who are not enrolled in CHEM 419/519 without instructor permission.

Faculty Buddy System

In the event of instructor illness, an alternative member of the Chemistry faculty will coordinate class meetings and record them. Thank you for your understanding regarding any associated delay in grading.