

Chemistry 3610 **Inorganic Chemistry** **Spring 2020**

Lecturers **Adam S. Veige**, CLB 412b email through canvas course site
Daniel R. Talham, CLB 412a email through canvas course site

Office Hours Adam S. Veige, M, W, F Period 6 (12:50 – 1:40 pm)
Daniel R. Talham, M 2:00 – 4:00 pm; W 4:00 – 5:00 pm

Teaching Assistants Deene Wise, email through canvas course site
(CLB 414: Office hours: TBA)
Gabrielle Donalson, email through canvas course site
(CLB 408: Office hours: TBA)

Lecture Hours **Class #11001** M, W, F Period 4 (10:40 AM – 11:30 AM)
Class #23811 M, W, F Period 5 (11:45 AM – 12:35 PM)

Textbook: Miessler, G. L. and Tarr, D. A., *Inorganic Chemistry 5th Ed.*

Supplementary Text: Wulfsberg, G. *Foundations of Inorganic Chemistry* 2018.
Additional readings will be made available on the UF e-learning
site: <https://lss.at.ufl.edu/>

Helpful Texts: Cotton, Wilkinson, Gaus, *Advanced Inorganic Chemistry*
Cotton, *Chemical Applications of Group Theory*

Course Learning Objectives Students will:

- 1) Understand the composition of atoms
- 2) Gain a working knowledge of symmetry and group theory
- 3) Apply group theory to solving the electronic structure of inorganic complexes
- 4) Apply group theory to understanding the spectroscopy of inorganic complexes
- 5) Understand the periodic trends of inorganic aqueous ions
- 6) Learn to draw, recognize, and assign the 3-dimensional structure of inorganic complexes
- 7) Understand the interaction between ligands and metal centers
- 8) Learn the reaction mechanism of coordination complexes and apply kinetics and solve rate equations
- 9) Assimilate new knowledge and apply it towards solving problems centered on inorganic structure and bonding and the physical properties of coordination complexes

Topics and associated reading:

Introduction	Chapter 1
Atoms and Periodic Properties	Chapter 2
Simple Bonding Theories	Chapter 3 (omit 3.2.4)
Symmetry and Group Theory	Chapter 4, sections 4.1-4.3
Molecular Orbitals	Chapter 5, sections 5.1-5.4.6
Aqueous Ions	Wulfsberg Chapters 2 and 3
Acids and Bases	Chapter 6, sections 6.4-6.4.2; 6.6-6.6.1
Redox Chemistry	Wulfsberg Ch. 6, sections 6.1; 6.2A,B; 6.3; 6.5A,B.
Coordination Chemistry	
Introduction	Chapter 9, sections 9.1-9.3.5
Bonding	Chapter 10, sections 10.1-10.3; 10.4.4; 10.5-10.6
Spectroscopy	Chapter 11, sections 11.1; 11.3.1; 11.3.7-11.3.8
Reactions	Chapter 12, 12.1-12.3, 12.8
Inorganic Solids	Chapter 7, sections 7.1 – 7.3
Bioinorganic Chemistry	TBA

This syllabus represents our current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

Examinations

In-Class Progress Tests: Friday, February 7;
Wednesday, March 18;
Friday, April 17
Cumulative Final Exam: **Time and place not yet determined**

Grading

Progress Tests	250 points (two best scores plus ½ of lowest score)
Problem Sets	100 points
<u>Final Exam</u>	<u>150 points</u>
Total	500 possible points

The following anticipated grade cut-offs will not be raised: From 500 total points, A(420), A-(400), B+(380), B(360), B-(340), C+(320), C(300), C-(280), D+(260), D(240)

****Note: you have two weeks to request a re-grade of an exam or problem set.**** After two weeks the score will be final. Warning: we photocopy exams and problems sets and will check with the copy prior to re-grading.

To review the current UF grade point equivalencies go to:
<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Conflict Exams

CHM 3610 manages all conflicts with scheduled assessments and examinations in accordance with University policy.

<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext>

Unavoidable absences by students from examinations are allowed if properly documented and disclosed to the instructor at least one week prior to the anticipated conflict. Permitted absences may include, but are not limited to: religious observances, sanctioned sporting events, and other UF exams if the other course has a higher course number than CHM 3610. In all such cases, students will be given the opportunity to take a conflict exam.

Unpredicted absences due to medical illness are not covered under the above conflict exam policy. If the time and severity of the illness is severe enough to make continuation in scholastic activity impossible for the rest of the term, a medical withdrawal is strongly advised. If needed, please consult the Dean of Student's Office for policy and procedural advice on medical withdrawal.

If a medical condition resulting in the student's absence during a scheduled exam is unexpected, relatively minor, and can be recovered from relatively soon, we request that the student -- as soon as he or she is healthy, which is our first concern -- provide verifiable documentation of the medical condition to the course instructor within a timely fashion of the scheduled exam.

Accommodation for Students with Disabilities:

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester

Lecture:

Chemistry 3610 will survey modern inorganic/organometallic concepts of bonding, reactivity, and physical properties.

Problem Sets:

Problem sets will be assigned at intervals of approximately one week. Problem Sets are due at the beginning of class. Problem sets handed in immediately after class but on the same day will be assigned a grade of M (5 pts). Problem sets

handed in after the due date will not be graded (0 pts)
Solutions will be provided.

Grading: Problem sets will be graded as follows
Satisfactory: S (10 pts)
Marginal: M (5 pts)
Unsatisfactory: U (0 pts)

Satisfactory (S) problems were attempted and there is an obvious understanding of the material demonstrated. (i.e. just attempting a question is not satisfactory)
Marginal (M) grade will be assigned for sloppy work, not attempting a problem, if a significant portion is incorrect.
Unsatisfactory (U) majority of the problem sets is incorrect.

Class Attendance: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext>

Honesty Policy: All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

Software Use: All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy: There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:
Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

Feedback

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.