

**Lecturer**

Ashlyn R. E. Hale (you can call me Dr. Hale or Professor Hale)

Office: CLB 412D

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**Student Hours with Professor Hale**

in my office CLB412D (if enough people come, we will relocate to CLB414)

Wednesdays 10:45 am – 12:15 pm, Thursdays 10:40 am-12:10 pm

*\*This is one of my favorite parts of my job! Please come and ask any questions you may have.*

**Teaching Assistant (TA)**

The TA is **TBD**, email through canvas course site for course/ grade-related questions.

Office hours: TBA

**Lecture Meeting Times**

**3 credit hour course.** All sections are **face-to-face instruction**.

Class No. **20383**, Section **I36C**: M, W, R, F period 2 (9:30-10:45 am) in LEI 207

**Course Description**

Basic theoretical concepts involved in inorganic chemistry. Periodic trends, chemical bonding, structure and reactivity

**Prerequisites**

CHM 2211 or CHM 2213 or CHM 3217.

**Required Textbook**

Miessler, G. L., Fischer, P. J., and Tarr, D. A. *Inorganic Chemistry 5th Ed.* (abbreviated MFT)

**Course Fees:**

\$1.33 which covers printed out assessments and assignments throughout the term.

**Supplementary Text**

Additional readings from this text will be made available on the UF e-learning site, Canvas.

Wulfsberg, G. *Foundations of Inorganic Chemistry* 2018.

The following helpful textbooks are available in Marston:

Atkins, P., *et al.* *Shriver & Atkins' Inorganic Chemistry*, 5th Ed. 2010 (QD151.5.S57 2010)

Bowser, J. R. *Inorganic Chemistry*, 1993 (QD151.5.B68)

Primary articles as noted on Canvas

**Course Learning Objectives**

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

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

## Tentative Course Calendar

Lecture(s)	Dates	Topic(s)	Assigned Reading
1-3	5/14-16	Intro, Atoms, Periodic Properties	MFT Ch 2
4	5/19	Simple Bonding Theories	MFT Ch 3 (omit 3.2.4)
4-6	5/21-23	Symmetry and Group Theory	MFT Ch 4
<b>Note: No Class May 26</b>			
7	5/28	Group Theory	MFT Ch 4
	5/29	In-class Review Day	
	<b>5/30</b>	<b>Progress exam 1 in class</b>	
8-11	5/30-6/6	Molecular Orbital Theory	MFT Ch 5.1-5.4.6
	6/9	In-class Review Day	
12	6/11	Lewis Acids and Bases	MFT Ch 6.4
13	6/12	Hard-soft acid-bases	Wulfsberg Ch 3.2; MFT Ch 6.6
14	6/13	Ionic Bonding	MFT Ch 7.2
15-18	6/14-16	Aqueous Ions	Wulfsberg Ch 2 and Ch 3.5-3.9
	6/16	In-class Review Day	
	<b>6/18</b>	<b>Progress Exam 2 in class</b>	
<b>Note: No class 6/19-6/27 (Juneteenth + summer break)</b>			
	6/30-7/2		Wulfsberg Ch 6.1; 6.2A,B; 6.3; 6.5A,B
19, 20		Redox Chemistry	
21	7/3	Bonding in Solids	MFT 7.1, 7.3, 7.4
<b>Note: No Classes July 4<sup>th</sup> Holiday</b>			
22,23	7/7-7/9	Bonding in Solids	MFT 7.1, 7.3, 7.4
24-27	7/10-14	Coordination Chemistry & Ligand Field Theory	MFT Ch 9.1-9.3.5 and Ch 10
	7/16	In-class Review Day	
	<b>7/17</b>	<b>Progress Exam 3 in class</b>	
28-33	7/18-8/1	Inorganic Reactions & Mechanisms, Organometallic Chemistry, and Bioinorganic Chemistry	MFT 12 and TBA
	<b>8/6</b>	<b>Final Exam in class</b>	

- **Holidays: May 26 (Memorial Day), June 19, June 23-27 (summer break), July 4 (Independence Day)**
- **This syllabus represents the current plans and objectives. As the semester progresses, those plans may change to enhance the class learning opportunity.**
- **Such changes are usual and expected and will be communicated clearly via Canvas announcements- check Canvas daily for updates.**

## GRADED COMPONENTS

Progress Exams	60%	(see average replace policy)
Problem Sets	15%	
Final Exam	25%	
<b>Total</b>	<b>100%</b>	

### GRADING SCALE

**The following anticipated grade cut-offs will not be raised but can be lowered at the discretion of the instructor:**

A(88%), A-(84%), B+(80%), B(76%), B-(72%), C+(68%), C(64%), C-(60%), D+(56%), D(52%), E (<52%)

*Note: A minimum grade of C is required to earn General Education credit.*

### PROGRESS EXAM “AVERAGE/REPLACE” POLICY

This applies to all students. No progress exam score will be dropped for any reason. To alleviate the stress of potential issues that do not fall under officially sanctioned absences, we have incorporated an ‘average/replace’ policy: the lowest of the three progress exams will be replaced by the average of the three progress exams. This policy helps to minimize the impact of a single poor performance (it will not disappear, but will be minimized). For example, if a student scores the following on their three progress exams: 0%, 65%, 80%, the 0% would be replaced with the average of 0, 65 and 80, which is 48%. That is a much better score than a 0.

**There is no extra credit available for this course.** We do not anticipate rounding grades at the end of term and exam grades, or course grades are not curved. Take care to complete each assignment prior to its advertised due date and to submit assignments as directed. Contact the UF Help Desk for help as needed with Canvas.

To review the current UF grade point equivalencies go to:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

### Examinations

Progress Exam 1	Friday, May 29	In class 9:30am – 10:45 am Location: LEI 207)
Progress Exam 2	Friday, June 18	In class 9:30am – 10:45 am Location: LEI 207)
Progress Exam 3	Tuesday, July 17	In class 9:30am – 10:45 am Location: LEI 207)
Cumulative Final Exam	Wednesday, Aug 6	In class 9:30am – 10:45 am Location: LEI 207)

**Three progress exams and one cumulative final exam are in-person.** The course material builds on itself, so progress exams are necessarily cumulative in nature.

**\*\* Note: Queries regarding exam scores must be made within one week after the graded exams have been returned to the class without exception. \*\* After one week, the score will be final.**

### Conflict/Makeup 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/>

Exam absences will be handled in accordance with official UF academic regulations. For more information, see <https://catalog.ufl.edu/UGRD/academic-regulations/>. See below for further clarification for two different types of situations.

(1) **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 an early or late conflict exam. (For more information on such absences see the official UF Policy at <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext>). If you must be absent for an exam due to a documented and approved conflict known in advance, you must e-mail your instructor (within Canvas) the documentation at least one week prior to the scheduled exam and an **early conflict exam** (*i.e.*, before the regular exam date) will be scheduled for you.

(2) **Missing an exam due to an emergency or sudden illness:** If you are absent for an exam due to an unpredicted documented medical reason or family emergency, you must contact the instructor as soon as possible, and you may be asked to have your excuse verified by the Dean of Students Office (DSO). Your instructor will follow UF academic regulations in evaluating the notification and/or documentation received from you or from the DSO on your behalf. Once your instructor is satisfied with the validity of your exam absence a make-up exam will be scheduled after a reasonable amount of time, *i.e.*, before the end of the semester. If your documentation is deemed insufficient to excuse your absence you will receive a zero on the missed exam.

## Problem Sets

- Problem sets will be assigned at **intervals of approximately one week, due on Canvas as an uploaded PDF file Thursdays at 11:59 PM.**
- **Some problem sets will be distributed and worked on during lecture, as students are expected to attend all lectures in person. These will be turned in for grading at the end of the designated lecture period.**
- **During exam weeks, the due dates may be adjusted and communicated ahead of time via Canvas.**
  - Problem sets **submitted after the due date and time but within 24 h** (i.e., before Fridays at 11:59 PM) have a maximum possible grade of M (5 pts, see below).
  - Problem sets handed in **after the due date will not be graded** (0 pts). Timestamps for late submission are as marked by Canvas. Solutions will be provided after the assignment due date.
- Problem sets- both in-class and take-home- will be **graded** as either **Satisfactory** (10 pts), **Marginal** (5 pts), or **Unsatisfactory** (0 pts)
  - **Satisfactory** or **S**: problems were attempted and there is an obvious understanding of the material demonstrated (i.e., just attempting a question is not satisfactory)
  - **Marginal** or **M**: sloppy work, not attempting all problems, or if a significant portion is incorrect
  - **Unsatisfactory** or **U**: majority of the problem set is incorrect or not attempted

## Personal and Grade-Related Questions

- For grade-related questions, direct your initial inquiry to one of the graduate TAs. If additional input is required, the TA will consult with instructor. Direct these questions to your TA via the mail function in Canvas.
- **Do not email outside of Canvas to your instructor's external email address** – we are not permitted to discuss grade-related questions outside of Canvas. You will be asked to resend the query through Canvas.
- If you wish to request a one-on-one discussion, email the instructor through Canvas.

## General Questions

- General course questions should be emailed to the instructor/TA via Canvas messaging with an expected response time of 24-48 hours during the work week (expect to wait until Monday for questions posted on a Friday).
- Please check Canvas multiple times a day for important updates and announcements, as well as helpful resources provided by the instructor.

## Class Attendance

Both sections of this course are in-person and attendance is **strongly** recommended. **Some problems sets from the problem set graded category will be administered in lectures, and thus attendance at these lectures is the only way to complete these assignments.** Students are advised to read the text prior to lecture. Should grasping content prove challenging, students should first review lecture materials and related problem sets and then attend TA or instructor office hours.

## Lectures in Person

The course will **not** be delivered in concurrent online lecture access with the in-person delivery unless deemed necessary by the institution.

Students are allowed to record video or audio of class lectures. The purposes for use of these student recordings are strictly limited, however. The only allowable purposes are (1) for **personal** educational use, (2) in connection with a complaint to the university, or (3) as evidence in or in preparation for a criminal or civil proceeding. All other purposes are prohibited.

**Specifically, students cannot publish recorded class lectures without the written consent of the instructor.** A “class lecture” is an educational presentation intended to inform enrolled students on a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or

lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

## **University Policies**

### **University Policy on Accommodating Students with Disabilities**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Accommodations are not retroactive and, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

### **University Honesty Policy**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida. The following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.”

### **U Matter, We Care**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352- 392-1575. The U Matter, We Care team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing Staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

### **Feedback**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals
2. Their Canvas course menu under GatorEvals
3. The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **Netiquette**

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. A detailed guide is posted under the *Settling In* section in Canvas.

### **Getting help with Canvas**

For issues with or technical difficulties with Canvas, contact the UF Help Desk: <https://lss.at.ufl.edu/help.shtml>; (352)-392- HELP. Other resources are available at <http://www.distance.ufl.edu/getting-help> for Counseling and Wellness resources, disability resources, resources for handling student concerns and complaints, and library desk support.

### **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 Available to Students:**

### ***Health and Wellness***

- U Matter, We Care: If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), [352-392-1575](tel:352-392-1575), or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call [352-392-1575](tel:352-392-1575) for information on crisis services as well as non-crisis services.
- Student Health Care Center: Call [352-392-1161](tel:352-392-1161) for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).
- University Police Department: Visit [UF Police Department website](#) or call [352-392-1111](tel:352-392-1111) (or 9-1-1 for emergencies).
- UF Health Shands Emergency Room / Trauma Center: For immediate medical care call [352-733-0111](tel:352-733-0111) or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the [UF Health Emergency Room and Trauma Center website](#).
- GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call [352-273-4450](tel:352-273-4450).

### ***Academic Resources***

- E-learning technical support: Contact the [UF Computing Help Desk](#) at [352-392-4357](tel:352-392-4357) or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).
- [Career Connections Center](#): Reitz Union Suite 1300, [352-392-1601](tel:352-392-1601). Career assistance and counseling services.
- [Library Support](#): Various ways to receive assistance with respect to using the libraries or finding resources. Call [866-281-6309](tel:866-281-6309) or email [ask@ufl.libanswers.com](mailto:ask@ufl.libanswers.com) for more information.
- [Teaching Center](#): 1317 Turlington Hall, Call [352-392-2010](tel:352-392-2010), or to make a private appointment: [352-392-6420](tel:352-392-6420). Email contact: [teaching-center@ufl.edu](mailto:teaching-center@ufl.edu). General study skills and tutoring.
- [Writing Studio](#): Daytime (9:30am-3:30pm): 2215 Turlington Hall, [352-846-1138](tel:352-846-1138) | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; [Visit the Complaint Portal webpage for more information](#).

Enrollment Management Complaints (Registrar, Financial Aid, Admissions): [View the Student Complaint Procedure webpage for more information](#)