Inorganic Chemistry
CHEM 3311_001
Fall 2023
MWF 10:00–10:50am.
Math Building # 132

Instructor: Rashid Mia, Ph.D.
Office: Math 117
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E-mail: Rashid.mia@sfasu.edu

Office Hours: In person:
M: 4-5 pm
T: 2-3 pm
W: 9-9:55 am
Th: 10-12 pm
F: 9-9:30 am

In addition to the posted office hours, feel free to stop by my office anytime to chat with me. Typically, I move back and forth in my office and research lab (Chemistry building 205), so better if you e-mail me to set up an appointment if it is not my posted office hours.

Prerequisites & Corequisite:

Prerequisite: CHEM 1311, CHEM 1111 and CHEM 1312, CHEM 1112.

Required Textbook:
Inorganic Chemistry by Catherine E. Housecroft and Alan G. Sharpe, 5th Edition
Chemistry of the Elements by N.N. Greenwood and A. Earnshaw, 2nd Edition

Course Description:

This course is for 3 credits and typically meets for 150 minutes a week for 15 weeks plus 6 hours (three exams), and a 2-hour final examination. Students have significant weekly reading and homework assignments involving critical thinking and quantitative reasoning. Students are tested over the material via quizzes and several exams during the semester including a comprehensive final exam.

This course is mainly about the chemistry of elements, to examine various aspects of the Periodic Table. Bear in mind that the periodic table is the main tool of the inorganic chemist. This will be done by first looking at the Table as a whole, and then by examining each element or group of elements in more detail. The main group elements will be first, followed by the transition and inner transition elements. In addition to this, there will be a few selected topics to
help in the understanding of roles of transition metals in organometallic chemistry and bioinorganic chemistry, as time permits.

Our goal in this course is to go through the learning and teaching process as a community to provide students with an explanation of descriptive inorganic chemistry and to apply these concepts to problem solving involving critical thinking. Of course, I want you all to become proficient in the basics of Inorganic Chemistry, so you can move on to higher level chemistry courses, but just as importantly, I want you to learn how to get the most benefit out of a classroom experience. To me, this means we leave our class with a better understanding of the physical world around us and of how we can use chemistry as a language in which to discuss what we observe in our world.

**Student Learning Outcomes:**

- Explain the position of elements in the Periodic Table and the relation of the elements’ physical and chemical properties based on electronic structure.
- Predict the formulation of main group inorganic molecules, their electronic and molecular structures, and their geometries. Predict reactivity properties based on structure and reactive centers, including some redox reactions.
- Account for extended structures, both ionic and molecular interactions between molecules.
- Be familiar with first row transition metals, their coordination complexes, and a few applications to bioinorganic chemistry.

In other words, I want you to **think**, to **reason**, to **evaluate**, to **question**, and to be able to tell me and others **what** you understand, through **writing** and **discussion**.

**Grading Policies:**

The final course grade will be based on points earned from exams, quizzes, homework assignments, and class participation. The points will be weighted as follows:

- **Exams (4)** – 50%
- **Quizzes (7)** – 25%
- **Homework** – 25%

**Late Work** – Late homework assignments will be accepted; however, you penalize yourself 10% off each day (the day ends at 5:00 pm), up to 50% off.

**Make-up Work** – There will be no make-ups offered for homework and exams.

**Excellent attendance** = lowest quiz grade will be replaced with highest one.

**Grading Scale:**

90% to 100%  A
Other Policies:

Attendance - “In order to earn course credit in the College of Arts and Sciences, a student must attend at least 75% of all scheduled class meetings. Any student who does not meet this minimal standard will automatically receive a grade of “F” in the course. Any University-related activity necessitating an absence from class shall count as an absence when determining whether a student has attended the required 75% of class meetings.” (CAS Attendance Policy)

***if you miss more than TEN classes, you will receive an F.

EXCUSE ABSENCE POLICY

SFASU made changes to faculty notification requests, formerly known as "Absence Notifications" for students, that became effective Aug. 1. Below, you will find the process in which students can submit absences and how the Dean of Students Office will handle these requests moving forward.

Purpose: This serves to formalize a process for student absences that meets requirements set forth by the institution and supports students who may have missed classes for specified reasons.

Qualifying reasons are unplanned absences that have impacted a student's ability to attend class. This must be submitted no later than 10 business days after the incident. Qualifying reasons will fall into the following four categories:

- Death of family member*
- Hospitalization - admitted into the hospital for health purposes (medical or mental)
- Personal emergency - this can include car accidents or drastic life events, such as a fire*
- Administrative and other - this can include jury duty, court subpoena, etc.

*Other situations may be considered at the discretion of the Dean of Students Office.

Additionally, requests must be accompanied with appropriate documentation, which includes, but is not limited to death certificates, obituaries/programs (with listed name), medical discharge documents, a subpoena, a jury summons, or a police report from an accident.
Some reasons for being denied a faculty notification request may include, but are not limited to illness, traffic court, oversleeping, physician's appointment, car trouble, or an emergency room visit (non-admittance).

PROCESS:
1. Students are responsible for submitting faculty notification requests and providing supporting documentation substantiating the reason for requests. **Requests with no supporting documentation will automatically be denied.**
2. SFA's Student Outreach and Support will review documentation and assess validity. Upon review, SOS will determine the approval or denial of the faculty notification request.
3. SOS will notify students of the faculty notification request determination and will notify faculty members only of approved faculty notification requests.
4. It is the student's responsibility to provide approved faculty notification requests to faculty members. Additionally, it is at the faculty member's discretion to honor approved circumstantial requests.

Classroom Behavior - Everyone should be treated with respect. While class is in progress, cell phone use is NOT allowed. If you want to use a laptop, a notebook or tablet for note taking, please sit in the back of the class or close to a wall so as not to distract other students. Talking with each other and reading of newspaper or books (other than relevant chemistry books) during class is allowed and should not be practiced.

Food and drinks (other than water/coffee/chocolate/candy) are not allowed inside classrooms. Late arrivals are disruptive, and those students should enter the room as quietly as possible to avoid distraction.

Code of Student Conduct and Academic Integrity (10.4):

The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations,
structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

Any student found cheating will be subject to the penalties as stated in the Student Code of Conduct handbook; including but not limited to a score of zero on exam, expulsion from the class or expulsion from the University.

**Withheld Grades Semester Grades Policy (5.5):**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. For additional information, go to [https://www.sfasu.edu/policies/course-grades-5.5.pdf](https://www.sfasu.edu/policies/course-grades-5.5.pdf).

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities:**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Student Wellness and Well-Being:**

SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.
ON-CAMPUS RESOURCES:

The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

CRISIS RESOURCES:

- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- johCrisis Text Line: Text HELLO to 741-741
**Schedule**

The following is an *approximate* schedule of when we will cover the material as text chapters and exam dates. Our course calendar will be posted on D2L and updated as we move along. **A REMINDER!** Assignment due dates for quizzes and homework are on D2L. It is your responsibility to keep up to date with assignment due dates.

<table>
<thead>
<tr>
<th>Course Dates</th>
<th>Topics</th>
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<tbody>
<tr>
<td>8/28 – 9/1</td>
<td>Unit 1 and Unit 2: Getting Started and Basics: Atoms</td>
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<tr>
<td>9/4 – 9/8</td>
<td>Unit 3: Basics: Molecules</td>
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<td>9/11 – 9/15</td>
<td>Unit 4: Redox Chemistry</td>
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<td>9/18 - 9/22</td>
<td>Unit 5: Hard-Soft Acid-Base Theory</td>
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<td><strong>Sept 26, Tuesday</strong></td>
<td><strong>Exam I, 4-6 pm</strong></td>
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<td>9/25 – 9/29</td>
<td>Unit 6: Introduction to molecular symmetry</td>
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<tr>
<td>10/2-10/6</td>
<td>Unit 6: Intro to molecular symmetry</td>
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<td>10/9 – 10/13</td>
<td>Unit 7: Boron, Carbon, Nitrogen Family</td>
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<td>10/16-10/20</td>
<td>Unit 7 + Unit 8: Chalcogens, Halogens, Nobel Gas</td>
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<td><strong>Oct 24, Tuesday</strong></td>
<td><strong>Exam II, 4-6 pm</strong></td>
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<td>10/23-10/27</td>
<td>Unit 8: Chalcogens, Halogens, Nobel Gas</td>
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<tr>
<td>10/30 – 11/3</td>
<td>Unit 9: Hydrogen, Group I metals, Group II metals</td>
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<td>11/6 – 11/10</td>
<td>Unit 10: Transition Metals</td>
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<td><strong>Nov 14, Tuesday</strong></td>
<td><strong>Exam III, 4-6 pm</strong></td>
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<td>11/13 – 11/17</td>
<td>Unit 11: Transition Metal Complexes</td>
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<td><strong>Thanksgiving Holiday</strong></td>
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<tr>
<td>11/27 – 12/1</td>
<td>Unit 12: Crystal Field Theory</td>
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<td>Date/Time</td>
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<td>12/4 – 12/8</td>
<td>Unit 12: Crystal Field Theory + Review for final</td>
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<tr>
<td>Dec 11 (10:30-12:30 pm)</td>
<td>Final Exam (IV)</td>
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