Advanced Inorganic Chemistry
CHE 4341.001 Math-132 MWF 9:00-9:50 am
Spring 2024

Name: Dr. J. Brannon Gary
Department: Chemistry & Biochemistry
Email: garyjb@sfasu.edu
Phone: (936) 468-2189
Office: M-116
Student Hours: MWF 11 AM - noon; F 1:30-3:30 PM; other times by appointment

Course Description: Advanced bonding theories and their application to inorganic chemistry. Focus upon fundamental mechanisms and application to inorganic reactivity.

This course is for 3 credits and typically meets for 150 minutes a week for 15 weeks plus meets for 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. These activities average at a minimum 6 hours of work each week to prepare outside of classroom hours.

Prerequisite: A minimum grade of C or better in CHE 3331 or special permission of instructor.

Course Objective: Inorganic chemistry is the study of chemistry of all elements of the periodic table. This course will focus on advanced bonding theories and fundamental properties, spectroscopy, and reactivity of inorganic compounds.

Student Learning Outcomes:
Upon course completion the students will:
▪ Understand basic inorganic bonding theory
▪ Applications of symmetry and group theory to bonding and spectroscopy
▪ Understand fundamental coordination chemistry and application to reaction mechanisms
▪ Apply knowledge to organometallic and bioinorganic chemistry

Outline of Topics (approximate course time):
Structure and Bonding (5-10 %)
Symmetry and Group Theory (15-20 %)
Molecular Orbitals (10-15 %)
Acid Base Chemistry (5-10 %)
Solid State Chemistry (5-10 %)
Coordination Chemistry: Bonding, Spectroscopy, and Reactions (20-25 %)
Organometallic Chemistry (20-25 %)
Bioinorganic Chemistry (5-15 %)

Text and Materials:
*Inorganic Chemistry 5th ed.*, by Gary Miessler, Paul Fischer, and Donald Tarr

Hour Justification:
This course is for 3 credits and typically meets for 150 minutes a week for 15 weeks plus meets for 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. These activities average at a minimum 6 hours of work each week to prepare outside of classroom hours.

**Grading Policy:**
There will be four semester exams (100 pts each), and a comprehensive Final (100 points). Emphasis of semester exams will focus on the material covered since the last exam but may utilize previous material in the semester. Homework will be assigned periodically and count for 100 points in total.

*Homework* – Homework will total 100 points (#points correct*100/ total points available).

Homework due dates will be announced in class. Homework will not be graded after the due date without legitimate documentation (NO EXCEPTIONS).

Last day to drop the course is Apr. 10th.

**Method of Evaluation:**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>POINT VALUE</th>
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<tbody>
<tr>
<td>Exam I</td>
<td>100</td>
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<tr>
<td>Exam II</td>
<td>100</td>
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<tr>
<td>Exam III</td>
<td>100</td>
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<td>Exam IV</td>
<td>100</td>
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<tr>
<td>Homework</td>
<td>100</td>
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<td>Final Exam</td>
<td>100</td>
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<tr>
<td><strong>TOTAL POINTS</strong></td>
<td><strong>600</strong></td>
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**Grading Scale (Based on 600 Total Points Possible)**
600-540 = A; 539-480 = B; 479-420 = C; 419-360 = D; 359-0 = F

**Attendance Policy:**
Attendance of class is mandatory. Seven (7) or more absences will result in an ‘F’ for the course.

**Academic Integrity:**
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.

**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 coursework 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 to compute 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).

**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 promptly 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](http://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](http://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](http://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)
Crisis Text Line: Text HELLO to 741-741
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<td>Intro</td>
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<td>Atomic Structure</td>
<td>Jan. 22</td>
<td>Ch. 2</td>
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<td>Simple Bonding Theories</td>
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<td><strong>Exam 1</strong></td>
<td>Feb. 14</td>
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<td>Acid/Base Chemistry</td>
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<td>Solid State</td>
<td>Feb. 26</td>
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<td>Main Group Elements</td>
<td>Mar. 4</td>
<td>Ch. 8</td>
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<td><strong>Exam 2</strong></td>
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<td>Spring Break</td>
<td>Mar. 11-15</td>
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<td>Coordination Chemistry</td>
<td>Mar. 18</td>
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<td>Chemical Bonding</td>
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<td><strong>Easter Break</strong></td>
<td>Mar. 28-29</td>
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<td>Electronic Spectra</td>
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<td><strong>Exam 3</strong></td>
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<td>Organometallic Chemistry</td>
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<td>Organometallic Reactions</td>
<td>Apr. 22</td>
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<td>Ch. 15</td>
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<td><strong>Exam 4</strong></td>
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<td>Final Exam</td>
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