CHE 331, Inorganic Chemistry Laboratory, Fall 2008

COURSE OBJECTIVES

1. To synthesize a wide array of illustrative inorganic compounds.

2. To introduce concepts concerning the relationship between the structure and properties of coordination compounds, particularly color.

3. To expand the student's understanding of laboratory technique.

4. To reinforce the concept of equilibrium, and how to manipulate the Law of Mass Action to increase yields of product.

5. To make the connection between material learned and real-life applications.

COURSE OUTCOMES

1. The students will demonstrate critical thinking and scientific reasoning skills related to theoretical inorganic chemistry.

2. The students will acquire increased skill in laboratory preparation of inorganic compounds.

3. The students will acquire increase skill in utilizing vibrational and electronic spectra to characterize unknown inorganic compounds.

4. The students will strengthen their understanding of Lewis acid-base theory and its relationship to coordination chemistry.

5. The students will be able to relate the concepts they have learned to applications in their respective fields.

REQUIRED MATERIALS FOR THE COURSE

The following is available in the campus bookstore.

Text: *Microscale Inorganic Chemistry: A Comprehensive Laboratory Experience*, by Zvi Szafran, Ronald M. Pike, Mono M. Singh

MEETING TIMES

Laboratory: Wednesday 1:00 – 4:00 P.M., SCI 128

Instructor's office: Miller 2

Office Hours: Monday, Wednesday, Friday 10:00 AM - 11:00 AM, and by appointment

Email: ltsein@cedarcrest.edu

GRADING SYSTEM

The grade for this course is based on weekly laboratory reports (60%), instructor perception of technique (20%), and a comprehensive final exam (20%).

The final letter grade will be awarded according to the following scale:

93 – 100%	A	80 – 82.9%	B-	67 – 69.9%	D+
90 – 92.9%	A-	77 – 79.9%	C+	60 – 66.9%	D
87 – 89.9%	B+	73 – 76.9%	C	Below 60%	F
83 – 86.9%	B	70 – 72.9%	C-		

POLICIES

Laboratory Attendance

Laboratory attendance is **mandatory** in order to perform well in this class.

Attendance on Laboratory Days

Attendance on laboratory days is mandatory. There are ***NO*** make-up labs. If one experiment is missed, the student will be assigned an additional home assignment. A second missed lab will result in the grade of zero for the second lab.

Obtaining Assistance

Do not hesitate to seek assistance concerning class lectures, homework assignments, or grading. If the student can not make it to the instructor's scheduled office hours, she should make arrangements to meet with the instructor at an alternative time at both the student's and the instructor's convenience.

Honor Philosophy

"The Cedar Crest College Honor Philosophy states that students should uphold community standards for academic and social behavior in order to preserve a learning environment dedicated to personal and academic excellence. Upholding community standards is a matter of personal integrity and honor. Individuals who accept the honor of membership in the Cedar Crest College community of scholars pledge to accept responsibility for their actions in all academic and social situations and for the effect their actions may have on other members of the College community."

The instructor expects each student to abide by the college's honor code. This honor code applies to all activities associated with this course. The student should realize that the honor code is an important aspect of the educational process at Cedar Crest College.

The following statement concerning Classroom Protocol is supported by Cedar Crest College Faculty and Administration:

"Appropriate classroom behavior is implicit in the Cedar Crest College Honor Code. Such behavior is defined and guided by complete protection for the rights of all students and faculty to a courteous, respectful classroom environment. That environment is free from distractions such as late arrivals, early departures, inappropriate conversations, and any other behaviors that might disrupt instruction and/or compromise students' access to their Cedar Crest College education."

Please be sure to turn off all cell phones and pagers during class times.

Community Standards for Academic Conduct:

"Academic integrity and ethics remain steadfast, withstanding technological change. Cedar Crest College academic standards therefore apply to all academic work, including but not limited to, handwritten or computer-generated documents, video or audio recordings, and telecommunications.

As a student at Cedar Crest College, each student shall:

- Only submit work which is his/her own.
- Adhere to the rules of acknowledging outside sources, as defined by the instructor, never plagiarizing or misrepresenting intellectual property.
- Neither seek nor receive aid from another student, converse with one another when inappropriate, nor use materials not authorized by the instructor.
- Follow the instructions of the professor in any academic situation or environment, including taking of examinations, laboratory procedures, the preparation of papers, properly and respectfully using College facilities and resources, including library and computing resources to ensure that these resources may be effectively shared by all members of the College community.
- Abide by the Cedar Crest Computer Use Policy.
- If a student perceives a violation of the Academic Standards, he/she will go to their instructor.
- If you are unable to resolve the problem with the instructor, you should go to the chair of the department. If you need further assistance after the consultation with the instructor and the chair, you should see the Provost."

It is the instructor's policy to deal with violations of these Standards for Academic Conduct by awarding a grade of **F** for the course for *any* instance of cheating - no ifs, ands, or buts.

Students with Learning Disabilities

The instructor supports the Cedar Crest College policy regarding learning disabilities as follows:

"Students with documented disabilities who may need academic accommodations should discuss these needs with their professors during the first two weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center."

CHRONOLOGICAL PLAN FOR THE COURSE

The schedule on the following page lists the dates and topics which constitute the labs pertaining to this course. A summary of the testing schedule and content is provided. The schedule **may be** modified throughout the course, as needed.

Laboratory Topics Schedule

Date:	Topic
8/27	Lab check-in
9/3	Expt. 9 – The oxidation states of tin – p. 181
9/10	Ammine complexes of Co (handout)
9/17	Expt. 25 – Metal - metal bond – p. 234
	Expt. 19 – Interhalogens – p. 213
9/24	Expt. 18 – Synthesis of dipyridineiodine (I) nitrate – p. 210
10/1	Expt. 22 – Metal acetylacetonates - p. 224
10/8	Expt. 22 – Metal acetylacetonates #2 – p. 227
10/15	Expt. 26 – Geometric isomerism – p. 239
10/22	Synthesis of Cr (II) acetate {glove bag} (handout)
10/29	Expt. 30 – Salen ligand – p. 252
11/5	Expt. 27 – Optical isomers
11/12	***Last Day to withdraw from class***
	Expt. 31 – Dicloro-1,3-bis (diphenylphosphino) nickel, p. 257
11/19	Expt. 47 – Metal Complexes of Saccharin, p. 47
11/26	*Thanksgiving Break – No Class*
11/28	TBA

Testing Schedule Summary

2008 Date	Test	Material Included
Wed 12/3	Final Exam	Comprehensive