

## Inorganic Chemistry (Chem 4210/6210)

**Spring 2014**

**Prerequisite:** Chem 4120/6120

**Professor:** Dr. K.B. Grant, 423 NSC, (404) 413-5522, kbgrant@gsu.edu

**Lecture:** TTh 2:30 PM - 3:45 PM, Classroom South, Room 327

**Office Hours:** TBA

**Required Texts:** "Inorganic Chemistry: Principles of Structure and Reactivity, **Fourth Edition**" James E. Huheey, Ellen A. Keiter, Richard L. Keiter (1993); "Descriptive Inorganic Chemistry, **Fifth Edition**" Geoff Rayner-Canham and Tina Overton (2010).

**Optional Text:** "Student Solutions Manual for Descriptive Inorganic Chemistry, 5th Edition" Geoff Rayner-Canham and Tina Overton.

**Tentative Lecture Schedule:** This schedule is a general guide and will be modified as needed.

Date	Chapter	Topic	(Tu = Tuesday)
<b>Jan 14</b> (Tu)	2 Huheey; 1 Rayner	Atomic Structure	
Jan 16	2 Huheey; 2 Rayner	Atomic Structure & Periodicity	
Jan 21 (Tu)	2 Huheey; 2 Rayner	Atomic Structure & Periodicity	
Jan 23	4 Rayner	Metallic Bonding	
Jan 28 (Tu)	4 Rayner	Metallic Bonding	
Jan 30	4 Huheey; 5,6 Rayner	Ionic Bonding	
<b>Feb 4</b> (Tu)		<b>Quiz 1</b>	
Feb 6	4 Huheey; 5,6 Rayner	Ionic Bonding	
Feb 11 (Tu)	5 Huheey; 3 Rayner	Lewis Theory, VSEPR Theory	
Feb 13	5 Huheey; 3 Rayner	Valence Bond Theory, Electronegativity	
Feb 18 (Tu)	5 Huheey; 3 Rayner	Molecular Orbital Theory	
Feb 20	5 Huheey; 3 Rayner	Molecular Orbital Theory	
Feb 25 (Tu)		<b>Exam 1</b>	
Feb 27	6 Huheey	Reactions of Covalent Inorganic Molecules	
<b>Mar 4</b> (Tu)	11 Huheey; 19 Rayner	Werner's Coordination Theory, Geometry	
Mar 6	11 Huheey; 19 Rayner	Geometry, Isomerism	
Mar 11 (Tu)	11 Huheey; 19 Rayner	Counting d Electrons, Nomenclature	
Mar 13	11 Huheey; 19 Rayner	Thermodynamics, 18 e Rule, Valence Bond Model	
Mar 18 (Tu)		<b>No Class – Spring Break.</b>	
Mar 20		<b>No Class – Spring Break.</b>	
Mar 25 (Tu)	11 Huheey; 19 Rayner	Crystal Field Theory	
Mar 27	11 Huheey; 19 Rayner	Crystal Field Theory	
<b>April 1</b> (Tu)		<b>Exam II</b>	

<u>Date</u>	<u>Chapter</u>	<u>Topic</u>	(Tu = Tuesday)
April 3	11,12 Huheey	Molecular Orbital Theory of Transition Metal Complexes; Coordination Number and Geometry	
April 8 (Tu)	13 Huheey	Reactions, Kinetics, and Mechanisms	
April 10	15 Huheey; 23 Rayner	Organometallic Chemistry	
April 15 (Tu)	15 Huheey; 23 Rayner	Organometallic Chemistry	
April 17	15 Huheey; 23 Rayner	Organometallic Chemistry	
April 22 (Tu)	19 Huheey; Class notes	Bioinorganic Chemistry	
April 24	19 Huheey; Class notes	<b>Exam III</b>	
<b>May 1</b>	<b>Final Exam</b>	<b>ACS Cumulative, 1:30 PM – 4:00 PM.</b>	

**Desire2Learn:** Please access Desire2Learn for on-line course materials. In order to familiarize yourself with the Desire2Learn system, please log on to <http://www.gsu.edu/desire2learn/overview-for-students.html>. For technical support, contact the IS&T Help Center at: [help@gsu.edu](mailto:help@gsu.edu), 404-413-HELP (4357), [www.gsu.edu/help](http://www.gsu.edu/help).

**Office Hours:** The Instructor will be available to meet with Students during scheduled office hours. Additional office hours will be arranged by appointment. Students are required to bring their notes. Walk-ins may not always be accepted.

**Academic Honesty:** The Department of Chemistry follows Georgia State University's Policy on Academic Honesty (Section 409). **Students are expected to be familiar with and to comply with this policy.** Here is a link to Section 409: <http://www2.gsu.edu/~wwwfhh/sec409.html>. All tests taken must represent your individual, unaided efforts. The following are examples of academic dishonesty: (i) to use an unauthorized homework key to complete a graded homework assignment; (ii) to sign an attendance sheet for a Student that is absent from class; (iii) to receive or offer information during an examination; (iv) to use unauthorized supplementary materials during tests; (v) to commit plagiarism on examinations and graded homework assignments (*i.e.*, the act of presenting an individual's written work as one's own, without acknowledgment of the individual). Incidents related to academic honesty will be referred to the Chemistry Department Chair for appropriate action.

**Grading:** The grading scheme will be based on 500 points and will consist of three in-class exams, an in-class quiz, a cumulative ACS standardized final, homework, and attendance.

**Projected breakdown of points:**

Exam I	100
Exam II	100
Exam III	100
Quiz	50
Attendance	25
Homework	25
<u>Final Exam</u>	<u>100</u>
<b>Total:</b>	<b>500 points</b>

<b>Projected grade cut-offs:</b>	A plus	96%
	A	90%
	A minus	88%
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	B plus	85%
	B	75%
	B minus	73%
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	C plus	70%
	C	65%
C minus	63%	
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D	55%	
F	less than 55%	

**Notes on Plus/Minus Grading:** All Instructors have the option to award grades on a plus/minus scale. As per Departmental or College policy, Instructors decide on the criteria for the awarding of plus and minus grades. The following quality points are used to calculate GPAs.

A+:	4.30
A:	4.00
A-:	3.70
B+:	3.30
B:	3.00
B-:	2.70
C+:	2.30
C:	2.00
C-:	1.70
D:	1.00
F:	0.00
WF:	0.00

**Evaluations:** Student evaluations of the Instructor can be performed using the GoSOLAR/PAWS online evaluation system. Your constructive assessment of this course plays an indispensable role in shaping education at Georgia State. Upon completion of the course, please take time to fill out the online course evaluation.

**Student Accommodations:** Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed accommodation plan and are responsible for providing a copy of that plan to Instructors of all classes in which an accommodation is sought.

**Miscellaneous:** Tuesday March 4<sup>th</sup> is the last day to withdraw from a class and receive a "W". Please note that any Student who enrolled in the course **without having completed** the required course prerequisites could be withdrawn from the course on this date **if your class average is a C minus or lower**. Any Students falling into this category should make arrangements to meet with the course Instructor on or before Tuesday March 4<sup>th</sup>.