

Chemistry of the Elements
Chem 2131
Spring Quarter 2008

Jessie - I think
the copy machine needs
cleaning.

Thanks
Sandy

Instructor: Professor Sandra S. Eaton

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office hours	M 10-11 am; T 9-10 am; W 4-5 pm; F 10-11 am

Text: *Descriptive Inorganic Chemistry*, 4th edition, Geoff Rayner-Canham and Tina Overton, W. H. Freeman and Co., 2006. Purchase of the student's solution manual is optional.

Clickers: We will be using the new "Turning Point" clickers. These are based on a different technology than the orange ones that were used in Organic Chemistry, so they cannot be used interchangeably. If you don't already have a new clicker, please purchase one at the bookstore and register your clicker number in Blackboard.

Clicker Questions: There will be clicker questions during class to check your understanding of key concepts. These questions will typically be less complicated than exam questions that may ask you to integrate several concepts.

Assignments: The tentative class schedule, which is given on the following pages, lists the lecture topic and reading assignment for each class meeting. Updated versions will be posted on Blackboard. You should read the assignment for each date before coming to class. Homework will be assigned weekly, collected, and an answer key provided. The assignments will be added to the version of the course outline that is posted on Blackboard. If you have difficulty working an assigned problem it often is useful to try a similar problem from the end of the chapter for which the worked solution is provided in the student's solution manual which is available in the bookstore. From each homework set, one problem will be randomly selected for grading.

Student Presentations: Each student will work in a group to prepare a PowerPoint presentation on the biological significance of an assigned element. Presentations will be limited to 5 minutes and 5 Powerpoint slides, including references. Each student will do a part of the presentation. Presentations will be graded on the significance of the information, demonstration of understanding of principles discussed in the class, and quality of the presentation. Material from the presentations will be included on exams. Generalizations about bio-inorganic chemistry will be presented in lectures at the end of the quarter.

Exams

As shown on the following lecture schedule, there will be two hour-exams and a final exam. The final exam will be comprehensive. If your final exam score is higher than an hour exam score or if you miss an hour exam, the final exam grade will replace the lower/missing grade.

Blackboard

Updated versions of the syllabus including homework assignments, handouts and answer keys will be posted on Blackboard.

Thursday presentation will be posted on Blackboard.

Jessi
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machine.

Tentative Course Outline

Date	Topic	Reading	Homework due
3/24	Solvents, Bronsted acids and bases	129 - 140	
3/26	Acid-Base Behavior	141 - 148	
3/28	Pearson Hard-Soft Acid-base model	148 - 154	
3/31	Periodic Trends	184 - 194	
4/2	"	194 - 204	7.2, 7.14, 7.18, 7.24, 7.36, 7.44, 7.50, 7.60, 7.62
4/4	"	204 - 217	
4/7	Transition Metal Complexes – Oxidation states, geometries	484 - 489	
4/9	Ligands, isomers	489 - 494	
4/11	Bonding and crystal field theory	494 - 501	
4/14	Electronic Spectra	501 - 509	
4/16	Metallic Bonding	80 – 88	
4/18	Exam 1	Ch. 7, 9, 19	
4/21	Ionic Bonding	90 – 98	
4/23	"	99 - 104	
4/25	Enthalpy and Entropy	108 - 115	
4/28	Formation of Ionic Compounds	115 - 121	
4/30	Formation of Covalent Compounds	121 - 125	
5/2	Oxidation Numbers	159 - 164	
5/5	Balancing Redox Equations	164 - 168	
5/7	Redox Potentials	168 – 172	
5/9	Pourbaix Diagrams	172 – 180	
5/12	Transition Metals	513 - 519	
5/14	"	520 - 532	
5/16	Exam 2	Ch. 4, 6, 8	
5/19	Transition Metals (cont)	533 - 543	

5/21	"	544 – 548	
5/23	Bio-inorganic overview		
5/26	Memorial Day – no class		
5/28	Bio-inorganic (cont.)		
5/30	Overview, Summary Examples		
6/4	Comprehensive Final exam 8:00 - 9:45 am		

Thursday classes:

Date	Topics
3/27	Organize groups and assign topics for presentations; sample presentation on Se
4/3	Presentations on Na, K, Mg, Ca
4/10	Presentations on V, Cr, Mo, Mn
4/17	Review for exam 1
4/24	Presentations on Fe, Co, Ni, Cu
5/1	Presentations on Zn, Pt, Hg, Pb
5/8	Presentations on Si, Sn, P, S
5/15	Review for exam 2
5/22	Presentations on F, Cl, I
5/29	Review for final exam

Grading

2 hour exams	48% total (24% each)
Homework	9%
Clicker Questions	9%
In-class presentation	10%
Final exam	24%

Note that CHEM 2141 (lab) is graded separately.

Updated 3/22/08