CHM-115-A
9:40-10:30 MWF
PS H-152
SPRING 2004

Instructor: Dr. James P. Birk
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Office Hours: MWF 10:40-12:00
Other times by arrangement.
These times can be changed by mutual agreement.

Lecture presentations (as allowed by copyright protection of some material) can be seen on an internet site: http://www.public.asu.edu/~jpbirk

This web site will also contain this syllabus, class notes, weekly quiz topics, sample exams, and other information of interest to the course.

Computers in the Chemistry Learning Resource Center (PS H-137) are available for writing lab reports and graphing data. Microsoft Office (Word, Excel, etc.) is available on these computers. Graphical Analysis, a graphing program, is also available and is recommended for graphing data for your lab reports.

Section:		Lab Instructor:	Quiz Room:	Lab Room:	Time:
AA	80171	Nicole Zwick-Kozup	H-132	H-244	TTh 8:40-11:30
AB	33499	Tania Helbert	H-131	H-246	TTh 8:40-11:30
AC	85870	Chad McAllister	H-131	H-246	TTh 10:40-1:30
AD	48489	Brad Brown	H-552	H-244	TTh 12:40-3:30
AE	54857	Todd Windman	H-131	H-246	TTh 12:40-3:30
AF	65564	Amanda Cunow	H-331	H-244	TTh 2:40-5:30
AG	49186	Miranda McFall	H-131	H-246	TTh 2:40-5:30

Read the Textbook

The study of chemistry can be an exciting and rewarding experience when there is a joint effort among the students and the instructors to improve learning. Learning chemistry can be a challenge – you are confronted with a new language (terminology and symbolism) and you must synthesize new ideas while integrating your previous understanding of science and math. Success is a matter of exposure and practice. Learn to use your text properly by staying ahead of your instructor in the text and re-reading sections that you find confusing. After class meetings, read the pertinent sections again. It may take several readings to understand the material. It is very important to work through example problems as you read to re-enforce your understanding. You should also try the suggested exercises as you work through the material — don't wait until exam time to work these exercises.

Attendance

Attendance at scheduled class lectures is essential and expected. Do not expect to consistently miss class and still do well. Timeliness in arriving for class is expected. Class will always be dismissed by the end of the period. Remember to turn off your pager or cellular phone prior to coming to class.

Academic integrity

Cheating will absolutely not be tolerated. The first such infraction will be dealt with to the fullest extent permissible by the University. There are no exceptions. This includes (but is not limited to) any form of inter-student collaboration on exams or external assignments that is not specifically sanctioned by the instructors, use of prohibited materials or devices during exams, copying or distribution of quiz or exam answers prior to the test, and plagiarism. Because of the possibility of wireless collaboration, it is essential that all cell phones and PDAs be turned off and kept out of sight during exams. Any visible cell phone/PDA during an exam will be considered evidence of cheating.

CHM-115-A
LECTURE SCHEDULE*
SPRING 2004
Dr. J. Birk

DATE		CHAPTER	PAGES	TOPIC
W	1/21			Introduction
F	1/23	19	734-767	Chemical Thermodynamics
M	1/26			
W	1/28			
F	1/30	14	524-563	Chemical Kinetics
M	2/2			
W	2/4			
F	2/6			
M	2/9	15	574-604	Chemical Equilibrium
W	2/11			
F	2/13			
M	2/16			
W	2/18			EXAM I, CHAPTERS 19, 14, 15
F	2/20	16	612-652	Acid-Base Equilibria
M	2/23			
W	2/25			
F	2/27			
M	3/1	17	660-696	Additional Aspects of Aqueous Equilibria
W	3/3			
F	3/5			
M	3/8	20	776-820	Electrochemistry
W	3/10			
F	3/12			
M-F	3/15-3/19			SPRING Recess -- NO CLASSES
M	3/22			
W	3/24			
F	3/26			
M	3/29			EXAM II, CHAPTERS 16, 17, 20
W	3/31	21	830-859	Nuclear Chemistry
F	4/2			
M	4/5			
W	4/7			
F	4/9			
M	4/12	24	948-975	Chemistry of Coordination Compounds
W	4/14			
F	4/16			
M	4/19			
W	4/21			
F	4/23	22	866-911	Chemistry of the NonMetals (selected topics)
M	4/26			
W	4/28			
F	4/30			
M	5/3			EXAM III, CHAPTERS 21, 24, 22
M	5/10	7:40 - 9:30		FINAL EXAM

*** Some sections will be skipped; these will be announced at appropriate times during the course. Some chapters may take more or less time than estimated here.**

TEXT: Brown, LeMay, Bursten, Chemistry: The Central Science, 9th Edition, Prentice-Hall, 2003.
Lab Manual: R. C. Bauer, J. P. Birk, and D. J. Sawyer, "Laboratory Inquiry in Chemistry," Brooks-Cole, 2001.

CHM-115-A
SUGGESTED PROBLEMS
Brown, LeMay, Bursten, Chemistry: The Central Science

Following is a list of exercises in each chapter that we suggest you work. If a given section of the textbook is not covered in class, an announcement will be made that this material is not included on an examination; the corresponding exercises can then also be omitted. It is desirable for you to work additional exercises on your own as well. Also try some of the problems in the Additional Exercises section to make sure you can properly invoke the appropriate concepts without having them identified for you.

Answers to selected exercises (indicated by a red number) can be found at the end of the book, and complete solutions to the other exercises (indicated by a black number) can be found in the Solutions to Exercises, available from the bookstore. Most of the following exercises were selected from those with a red number.

CHAPTER	SUGGESTED PROBLEMS
19	1, 3, 5, 7, 17, 19, 21, 23, 25, 27, 29, 31, 33, 37, 39, 41, 43, 47, 49, 53, 61, 63, 73
14	1, 3, 5, 7, 9, 13, 16, 17, 20, 25, 27, 28, 32, 33, 37, 41, 43, 49, 53, 54, 55, 61, 63, 65, 69, 83
15	1, 3, 5, 7, 9, 11, 17, 19, 23, 27, 29, 31, 35, 39, 41, 43, 45, 51, 66, 69
16	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 31, 33, 35, 37, 41, 43, 47, 49, 51, 61, 63, 65, 69, 71, 73, 75, 77, 81, 85, 87, 93
17	1, 3, 5, 9, 11, 13, 17, 19, 23, 25, 29, 31, 35, 41, 43, 45, 47, 49, 51, 55, 68
20	1, 2, 3, 9, 11, 13, 17, 19, 23, 25, 29, 31, 35, 37, 41, 43, 45, 47, 49, 51, 55, 68, 71, 73, 75, 77, 87
24	5, 11, 15, 19, 23, 25, 32, 35, 37, 39, 41, 43, 45, 51, 54, 60
21	1, 3, 5, 7, 11, 15, 19, 23, 27, 29, 31, 33, 37, 39, 43, 45, 49, 51, 53, 55, 63, 73
22	1, 3, 7, 11, 13, 15, 21, 25, 29, 33, 35, 39, 48, 49, 50, 57, 61, 63, 69, 71, 73

CHM-115-A
LABORATORY SCHEDULE
SPRING 2004

DATES	EXPERIMENTS	
	TUESDAY	THURSDAY
1/20 – 1/22	1. What Are the Safety Concerns in the Lab? Check Into Lab	40. How Are Anions Identified?
1/27 – 1/29	10*. Are All Neutralization Reactions the Same?	40. (continued)
2/3 – 2/5	10. (continued)	41. How Are Cations Identified?
2/10 – 2/12	29*. Why is the Vinegar Factory Rusting?	41. (continued)
2/17 – 2/19	29. (continued)	41. (continued)
2/24 – 2/26	34*. What Is the Acid Dissociation Constant?	42. How Are More Cations Identified?
3/2 – 3/4	34. (continued)	42. (continued)
3/9 – 3/11	31. What Factors Affect Chemical Equilibrium?	42. (continued)
3/23 – 3/25	32*. What Is the Formation Constant?	42. (continued)
3/30 – 4/1	32. (continued)	42. (continued)
4/6 – 4/8	37*. What Are the Metals?	42. (continued)
4/13 – 4/15	39*. What Is the Complex Ion?	42. (continued)
4/20 – 4/22	39. (continued)	42. (continued)
4/27 – 4/29	42. Cation Analysis	Presentations/Posters (See p. 189 in the lab manual)
5/4	Check Out Of Laboratory; Investigation 42 reports and notebooks due	

Investigation numbers designated with a * are presentation/poster session choices.

Lab Manual: R. C. Bauer, J. P. Birk, and D. J. Sawyer, "Laboratory Inquiry in Chemistry", Brooks Cole, 2001.

Goggles must be worn in the lab at all times. Failure to abide by safety rules can result in your expulsion from the class.

At the beginning of the semester, you will be assigned to a group within which you will complete the lab investigations and write reports. Each member of the group is required to make an equal contribution to efforts for which you will receive credit. Your group is responsible for resolving issues of unequal contributions. If you are unable to do so, inform your TA or the lab coordinator. Lab grades will be adjusted according to efforts contributed by each group member.

If you must miss a lab for an excusable reason, written verification of the absence is required. Absences will only be excused for the following reasons: (1) There is a serious illness or death in your family; (2) You are ill enough to see a physician; or (3) You travel for an official, university sponsored function that requires your attendance; e.g. you're on the swim team.

Each investigation will require your group to submit a complete lab report (see page 4 of the lab book). Your lab instructor will announce due dates for each report. If you submit a report deemed unacceptable, your lab instructor will allow you to rewrite it. Your report will be graded according to the scheme shown below.

A laboratory notebook is required for this course. You must obtain a notebook capable of creating duplicate pages. The recommended carbonless lab notebook is being sold by ΑΧΣ in the foyer of PSH-Wing. This notebook will serve as your laboratory record of procedures, observations, calculations, and results. Your instructor will inspect your laboratory notebook throughout the semester.

If your TA does not arrive at your discussion room after fifteen minutes, you are excused from discussion only. You must inform a department staff person in PS H-239 or PS D-102, so a substitute for the lab can be arranged. You must return to the lab at the designated time.

CHM-115-A
COURSE GRADE DISTRIBUTION

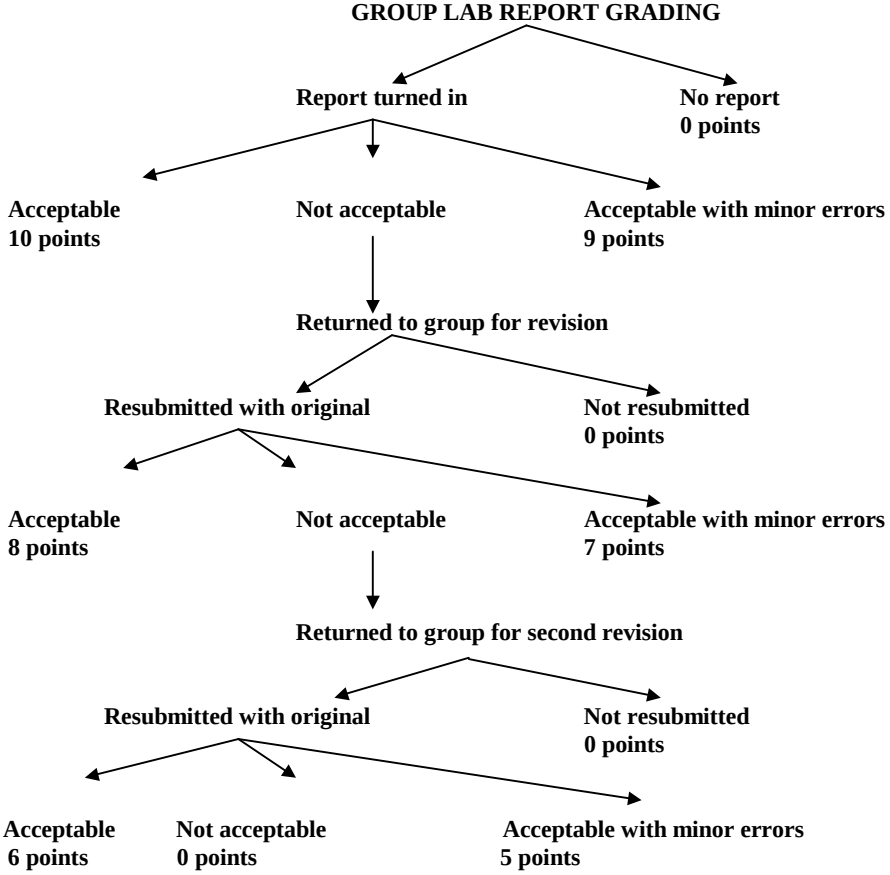
Hour Exams (3)	**300 points**	**(The lowest grade will be replaced by the average of the other two.)**
Final Exam	**200**	
Lab	**200**	
Quizzes (10 or more)	**100**	**(The two lowest grades will be dropped.)**
Group Quizzes (10 or more)	**50**	**(The two lowest grades will be dropped.)**
TOTAL POINTS	**850**	

LAB GRADE DISTRIBUTION

Investigations 1, 10, 29, 34, 31, 32, 37, 39		**80 points**
Qualitative Analysis Experiments		**80 points**
40. Anion Analysis	**10 points**	
41. Brief Cation Analysis	**20**	
42. Cation Analysis	**50**	
Lab technique evaluation		**20 points**
Notebook Evaluation		**20 points**
Poster		**20 points**

The final lab total will be adjusted to 200 points.

GROUP LAB REPORT GRADING



GUARANTEED LETTER GRADE DISTRIBUTION

Total Average		Exam Average	Letter Grade
> 87	**and**	**> 82**	**A**
> 72	**and**	**> 65**	**B**
> 57	**and**	**> 50**	**C**
> 45	**and**	**> 40**	**D**
< 45	**or**	**< 40**	**E**