Chemistry 18b

General Chemistry Laboratory
Brandeis University

Syllabus, Summer 2009

Chemistry 18b Faculty:

Instructor: Dr. Jason K. Pontrello (email: pontrell@brandeis.edu)
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Course Description:

This course is a continuation of the CHEM 18a laboratory and complementary to CHEM 11b lectures. The course includes qualitative and quantitative analysis using instrumental and wet chemistry techniques. Experiments include colligative properties, kinetics, and equilibria involving acid-base, electron transfer and solubility reactions. Titration, cell potentials and spectrophotometry will be used to evaluate equilibrium parameters. *Prerequisites: A satisfactory grade (C- or better) in CHEM 18a and CHEM 10a or CHEM 11a.*
Corequisite: CHEM 11b. Dropping CHEM 11b necessitates written permission from the lab instructor to continue with this course.

Class Times:

Lab Sections Mon, Thurs, 1 – 5:30pm in Shapiro Science Center 00-10
You are expected to be in your designated lab section, bay, and bench for every experiment. You can make-up a missed lab if you have an excused absence. The final exam is scheduled for Thursday, August 6th from 9-12pm.

Office Hours:

- Dr. Pontrello will hold office hours following each lecture (M, T, Th, F 11-1pm) or at other times by email appointment.
- Your Lab TA will hold scheduled office hours that will be announced during your lab section.

Required Materials:

- *Chem 18/19 General Chemistry Laboratory Manual* by Dolnik, 2008-2009 (available in chemistry stockroom).
- Laboratory Notebook (available at bookstore)

Course Handouts:

Any handouts will be distributed during class or lab.

Credit and Grading:

Grades will be calculated as follows:

Laboratory Reports	70%
Performance/Participation *(determined by Teaching Assistant)*	10%
Final Exam	20%

Preparation for Laboratory Experiments:

- Read the text for any experiment you will perform.
- Complete PreLab assignment problems prior to lab. Your solutions must be handed in for grading before you are allowed to start the lab.
- Write in your notebook:
  - title, date, purpose of experiment
  - list of equipment and chemicals
  - outline of experimental procedure – leave about half the right side of the page for observations reported during the experiment
- Bring lab manual, notebook, and scientific calculator to each lab.

Laboratory Reports:

Each Experiment will require a Preliminary Laboratory Report and a Final Laboratory Report.

Preliminary Laboratory Reports (PreLabs)

Hand in solutions to PreLab assignment problems at the beginning of lab. **Late assignments will not be accepted.** Your TA will check your notebook to verify you have completed to required work to begin the experiment (see previous section for list). If this is not complete, you will need to reschedule the time to perform the experiment, and will receive a 50% deduction from the final report.

Final Laboratory Reports

Lab reports are due at the beginning of the lab session following when the experiment was completed (unless stated otherwise). Late lab reports will receive a point deduction of 25% per day. A complete lab report must include the following *(Note some of these items are due as part of the PreLab)*:

- Title, date, purpose of experiment
- Abstract (overview of the experiment, results, and conclusions)
- List of equipment and chemicals
- Outline of experimental procedure
- Observations reported during the experiment
- Table of data and calculations
- Report Questions
- Plots and other data

Makeups:

You will be allowed to makeup a missed experiment with a documented medical excuse. If you arrive late to lab without documentation, you will not receive any points for and will not be allowed to perform the experiment.

Regrades:

Any regrades must be submitted in writing to Dr. Pontrello within 2 days after the graded document is returned. **Note: the entire document will be regraded.**

Laboratory Safety and Clean-Up:

Safety rules will be reviewed at Check-In. Violation of safety rules and/or keeping your working area clean will result in deduction of Performance/Participation points, and you may be required to leave the lab with an unexcused absence, depending on the violation.

Student Disabilities:

If you are a student with a documented disability on record at Brandeis University, and if you wish to request a reasonable accommodation for this class, please see Dr. Pontrello immediately. Please keep in mind that reasonable accommodations are not provided retroactively.

Academic Integrity:

Each student in this course is expected to abide by the Brandeis University Student Development and Conduct Rights & Responsibilities. Any work submitted by a student in this course for academic credit will be the student's own work.

Course Schedule:

	Monday	Tuesday	Wednesday	Thursday	Friday	Tentative Experiments
July	6 Lab 1	7	8	9 Lab 2	10	**Lab 1 (Exp11a):** Equilibrium: Measurement of Keq **Lab 2 (Exp21):** Synthesis of Co-complexes
	13 Lab 3	14	15	16 Lab 4	17	**Lab 3 (Exp12):** Acid base titration, buffers **Lab 4 (Exp13):** Titration of amino acids
	20 Lab 5	21	22	23 Lab 6	24	**Lab 5 (Exp14):** Qual Analysis: Precipitation and solubility **Lab 6 (Exp15):** Qual Analysis: Identification of unknowns
	27 Lab 7	28	29	30 Lab 8	31	**Lab 7 (Exp16):** Paper & column chromatography **Lab 8 (Exp18):** Kinetics of H2O2 decomposition
Aug	3 Lab 9	4	5	6 Final 9-12pm	7	**Lab 9 (Exp17):** Thermodynamics of acid dissociation