

GENERAL CHEMISTRY 1B, CHEM 2050 – SPRING 2014

NOTE: The **prerequisite** for Chem 2050 is Chem 1050. The material of Chem 1050 and 2050 together is the same as what is taught in Chem 1100. After passing Chem 2050, you may take Chem 2100.

Required Texts:

- *Chemistry, The Central Science*, Brown, LeMay, Bursten, and Murphy, Prentice Hall Pub., 2011, 12th Edition
- *Experiments in General Chemistry*, M. N. KobraK, Ed., **Third** edition, Kendall/Hunt, Dubuque 2012

Required Items:

- Scientific calculator (**Graphing calculators and cell phones are not allowed on exams!**)
- Lock for lab drawer
- Safety goggles (supplied in lab kit); matches; dish detergent, paper towels

Recommended Items:

- Lab coat or apron
- Study Guide to Brown, LeMay and Bursten, James C. Hill, 12th Ed., Prentice Hall
- Solutions to Exercises in Brown, LeMay and Bursten, R. Wilson, 12th Ed., Prentice Hall

Online Supplements and Info:

http://chemscript.brooklyn.cuny.edu/web/doc/2014_Spring_Syllabus_Chem2050.pdf
(syllabus on line)

<http://academic.brooklyn.cuny.edu/chem/howell/practice.htm> (old BC chemistry exams)

<http://chemscript.brooklyn.cuny.edu/web/index.php> (Chemistry Department Homepage)

<http://www.brooklyn.cuny.edu/web/academics/honors/prehealth.php> (Pre-Health Professions website)--contains a link to the **Pre-Health Professions Handbook**.

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The course will have several quizzes, one midterm exam and a final exam. Dates will be announced in advance.

NOTE: On Thursday, Feb. 20, MONDAY classes meet.

Academic dishonesty is prohibited in the City University of New York

Cheating, plagiarism, internet plagiarism and obtaining unfair advantages are violations of policies of academic integrity and are punishable by penalties, failing grades, suspension and expulsion.

For more information about CUNY policy on academic integrity see

<http://web.cuny.edu/academics/info-central/policies/academic-integrity.pdf>

Student Disability Services

In order to receive disability-related academic accommodations students must first be registered with the Center for Student Disability Services. Students who have a documented disability or suspect they may have a disability are invited to set up an appointment with the Director of the Center for Student Disability Services, Ms. Valerie Stewart-Lovell at 718-951-5538. If you have already registered with the Center for Student Disability Services please provide your professor with the course accommodation form and discuss your specific accommodation with him/her.

Lab Exemptions: Students who are repeating the course may be able to obtain laboratory exemptions. You may file a request for a laboratory exemption in the Chemistry Department office (359 NE). Whether a lab-exempt student re-takes the lab quizzes is up to the student. If you re-take the lab quizzes, we will use whichever lab quiz grade is higher, the previous one or the one from this semester. Lab exemptions are not available after Feb. 10.

Drop Dates: Tuesday February 18 is the last day to drop a course without a grade.

Thursday, April 24 is the last day to apply for non penalty withdrawal (*i.e.*, **W grade**). See your lecture instructor for advice. **To withdraw, you MUST file a form in the Registrar's Office (either electronically or in person) and go to the stockroom to CHECK OUT from the laboratory.**

Tuesday Feb. 4 is the last day to add a course.

GRADING:

Your final grade will be determined as follows:

- 25% Quizzes
- 18% Laboratory reports and performance
- 7% Two laboratory quizzes
- 20% Midterm Exam
- 30% Final Exam--

Reminder:

There was no lab in Chem 1.1; LAB is a part of CHEM 2050.

NOTE: TO PASS THIS COURSE WITH A GOOD GRADE, YOU MUST STUDY AT LEAST 10 HOURS EACH WEEK. PLAN YOUR SCHEDULE ACCORDINGLY!

Lectures and Homework Assignments

You should evaluate your performance in Chemistry 1050. Did you do all of the assigned reading and homework? Could you have done better in Chem. 1050? Now is the time to improve your study skills and homework habits. You should plan to spend 6-10 hours each week on homework. Remember the next course, Chem. 2100, is fast paced and you must be prepared for it. Get with it and succeed in Chemistry! Your key to success? Learning how to study properly and doing LOTS of homework! Falling behind in reading and homework is a SERIOUS MISTAKE. Organize your life around your coursework and keep up with the assignments. See your teacher during office hours for extra help.

Week #	Assigned Material
Week 1 Read: Homework:	Structure of the Atom Chapter 6.1-6.5 Chapter 6, Problems 11, 12, 13, 15, 16, 17, 19, 21, 23, 27, 28, 29, 35, 37, 39, 51, 52, 53,
Week 2 Read: Homework:	Structure of the Atom Chapters 6.6-6.9 and 7.1-7.2 Chapter 6, Problems 55, 56, 57a,b, 61, 65, 66, 69, 71, 73, 75 Chapter 7, Problems 11, 15
Week 3 Read: Homework:	Periodic Properties Chapter 7.3-7.5 Chapter 7, Problems 19, 21, 23, 24, 25, 31, 34a, 37, 39, 42, 47, 61, 71
Week 4 Read: Homework:	Ionic Bonding, Ion Size Chapter 8.1-8.2 Chapter 8, Problems 9, 13, 15, 19, 22, 23, 24, 26
Week 5 Read: Homework:	Covalent Bonding, Lewis Structures Chapter 8.3-8.5 Chapter 8, Problems 31, 33, 35, 37, 40, 41, 47, 48a,b
Week 6 Read: Homework:	Exceptions to Octet Rule, Bond Energy Chapter 8.6-8.8 Chapter 8, Problems 51(omit calculation of oxidation numbers), 53, 54, 55, 56, 63, 64, 69, 92
Week 7 Read: Homework:	The Gas Laws Chapter 10.1-10.5 Chapter 10, Problems 21, 25, 28, 29, 31, 32, 36, 37, 41, 43, 49, 53, 54, 58, 59
Week 8 Read: Homework:	Gas Mixtures, Reactions, Kinetic Theory Chapter 10.6-10.8 Chapter 10, Problems 6, 7, 63, 65, 71, 75, 77, 84, 85, 92
Week 9	<u>Review and Mid-term Exam</u> A mid-term exam will be scheduled during the 9 th or 10 th week of the term.

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Week 10 Read: Homework:	Molecular Shape, Dipole Moment Chapter 9.1-9.3 Chapter 9, Problems 15, 22, 23, 25, 27a,b,c, 28, 29, 31, 39, 43, 46, 96
Week 11 Read: Homework:	Intermolecular Forces, Liquids, Phase Changes Chapter 11.1, 11.2, 11.4, 11.5 Chapter 11, Problems 9, 10, 15, 17, 18, 21, 23, 25, 41, 45, 49, 51, 53, 55
Week 12 Read: Homework:	Solubility, Concentration, Colligative Properties Chapter 13.1-13.4 Chapter 13, Problems 15, 16, 25, 33, 34, 37, 39, 41, 43, 45, 48, 49, 51
Week 13 Read: Homework:	Colligative Properties, Phase Diagrams Chapters 13.5, and 11.6 Chapter 13, Problems 65, 71, 72, 74, 79, 80 Chapter 11, Problems 59, 61, 62
Week 14 Read: Homework:	Bonding in Solids, Review Chapter 12.1 Chapter 12, Problems 7, 9, 11, 21
Week 15	<u>Final Exam</u> This is a 2-hour exam covering the work of the entire semester. Tuesday Dec. 17, 10:30 AM.

Chemistry 2100 First Assignment (next semester)

It is necessary to do some preparatory work before your first meeting in Chemistry 2100.

Read: Chapter 14.1-14.3 in the textbook on Chemical Kinetics. Homework: Chapter 14, Problems 17, 19, 21 23a,b,c 25, 27, 30, 31, 33, 34, 37

LABORATORY EXPERIMENTS

Before coming to laboratory, read the scheduled experiment and any other material assigned. Unless otherwise noted, page numbers refer to your laboratory manual. Bring the lab manual to each lab class.

Brooklyn College recognizes the importance of reproductive hazard awareness and protection. During laboratory exercises students may be exposed to chemical reagents that may present specific risks to reproductive health, especially students who are pregnant. Therefore, it is strongly recommended that you do not take the following course if you are pregnant. If you become pregnant during the semester, please consult with your laboratory instructor.

NOTE: **SAFETY GOGGLES MUST BE WORN IN THE LABORATORY!** The goggles must be indirectly-vented to offer splash protection; New goggles are supplied to you in the lab kit. **If your instructor observes you violating eye protection or other safety policies, you can be removed from the laboratory and/or given a 10% (or higher) penalty on your laboratory report grade.**

Scientific data requires special treatment. It must be recorded in non-erasable ink your lab book immediately after a measurement is taken; partners cannot copy each others' data at a later time. **Altering or copying data outside of the laboratory represents academic dishonesty and will be prosecuted as such if observed.** Further, you will receive no credit for any lab report that includes data that are not your own. If your data are messy, you may copy them over onto a final report, but you must include your original data when you turn in your report.

Lab reports are due in lab the week after the experiment was concluded unless you obtain permission from your instructor. Late lab reports are penalized as follows: 10% off for 1 week or less lateness; 25% off for 2 weeks late; 35% off for 3 weeks late; 45% off for 4 weeks late, etc. All lab reports not handed in will receive a grade of zero.

Students who miss a laboratory:

Multiple sections of Chemistry 1100 and 2050 run every semester, and students who miss a section of their assigned laboratory may make it up in another section as soon as possible. To do this, they must obtain a make-up card from the General Chemistry stockroom. (This card does NOT have to be signed by their regular laboratory instructor.) They then go to the lab period in which they wish to make up the experiment, identify themselves to the instructor in that section, and (if given permission) perform the work. After the experiment is complete, the instructor for that section must sign and date the make-up card. The signed make-up card must be given to the regular laboratory instructor as proof that the lab was made up.

If your lab instructor is **not** grading the lab reports and returning them to you, please **notify the lecturer.**

From meeting three (Expt. 2) on, you are required to hand in a sheet before each lab as described at the end of the lab schedule.

Laboratory Breakage. In some schools, a laboratory fee is charged everyone. Our practice is to charge you only for the replacement cost of any items you lose or break. After check out, a bill will be prepared which you may pay at the bursar's office the following semester.

NOTE: If you have checked in for any lab course **you must check out** even if you only attend class for one or two weeks before dropping the course. Students who fail to check out will be charged a

fee of **\$50** plus the cost missing or broken equipment. Students who drop a course must go to the stockroom to check out as soon as possible.

NOTE: If you are repeating the course and have the second edition of the lab manual, you can get copies of experiments 7 and 8 (Gas Law, Spectra), which are not in the second edition, from the Stockroom.

Meeting	Laboratory Assignment
1	<u>Introduction to Laboratory</u> <i>Check in, Lab safety, laboratory</i>
2	<u>Experiment 1:</u> Density and Measurement <i>You MUST hand in the safety quiz and the signed safety sheet</i>
3	<u>Experiment 2:</u> Introduction to Gravimetric Analysis <i>Gravimetric determination of water of crystallization.</i>
4	<u>Experiment 3:</u> Synthesis of Zinc Iodide
5	<u>Experiment 4:</u> Basics of Chemical Reactions
6	<u>Experiment 5:</u> Volumetric Analysis: Acid-Base Titration (This is a long lab.)
7	<u>Experiment 6:</u> Introduction to Calorimetry (Note: If you are repeating the lab and have the second edition of the lab manual, you can get copies of experiments 7 and 8 from the stockroom.)
8	<u>Experiment 7:</u> The Ideal Gas Law.
9	<u>Experiment 8:</u> The emission Spectra of Atoms and Ions. (<i>This is a very short lab.</i>)
10	<u>Experiment 9:</u> Synthesis of Aspirin
11	<u>Experiment 10:</u> Spectrophotometric Analysis of Aspirin
12	<u>Experiment 11:</u> Intermolecular Forces and Physical Properties
13	<u>Experiment 12:</u> Determination of Molecular Weights by the Method of Freezing-Point Depression
14	Check out and Review <u>No experiments are permitted.</u>

PREPARATION FOR LABORATORY

To help prepare you for lab, you are required to hand in at the beginning of each lab (except experiment 1 in week 2) a sheet stating (a) what quantities are to be measured and (b) what quantities are to be calculated from the measurements. For example, for experiment 1: (a) Quantities

to be measured: masses and volumes of various objects and of water. (b) Quantities to be calculated: Densities of various objects and of water; also, the standard deviation of a repeated measurement. For an experiment such as experiment 4, where there are no measurements, just state briefly what you are to do and what you are to observe.

What you hand in should be no more than 4 or 5 lines long and must **not** include the detailed procedure of the experiment.

If you do not hand this in, your instructor will deduct 5% from your grade for that lab report.

Errata for Kobra, "Experiments in General Chemistry, 3rd. ed.,"

Experiment 6, page 61:

In the last equation on the page, the "+" after the first " C_{Cu} " should be a multiplication sign ("x"). That is, C_{Cu} is multiplied by the value in the parentheses that follow it.

Experiment 12, page 126:

Six lines from the bottom of the page, in the last sentence of the second-to-last paragraph, the phrase "treated as being 2.0 molal" should read "treated as being 0.20 molal".