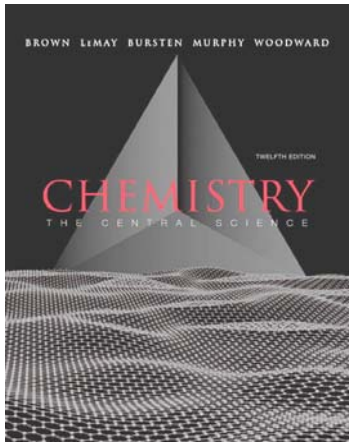
JOHN JAY COLLEGE OF CRIMINAL JUSTICE / CUNY

860 Eleventh Avenue, New York, NY 10019

Revised: 09/01/12: subject to minor changes

GENERAL CHEMISTRY I-A (CHE 101) FALL 2012 SYLLABUS

	Professor	*Office (NB)*	*Phone*	*E-mail*	*Office Hours*	*Classroom*	*Period*
Lecture– 01 *(0966)*	Artem Domashevkkiy	5.66.25	646-557-4640	ADomashevskiy@jjay.cuny.edu	Teaching days w/o	1.63	M/W-1
Recitation – 01	Loretta Kuo	3.62	646-781-5713	LKuo@jjay.cuny.edu	appt. & by appt.	1.105	M-2
Lecture– 02 *(0967)*	Loretta Kuo	3.62	646-781-5713	LKuo@jjay.cuny.edu	Teaching days w/o	1.127	M/W-1
Recitation – 02	Loretta Kuo	3.62	646-781-5713	YRada@jjay.cuny.edu	appt. & by appt.	1.100	W-2
Lecture– 03 *(1391)*	Artem Domashevskiy	5.66.25	646-557-4640	ADomashevskiy@jjay.cuny.edu	Teaching days w/o	1.125	M/W-3
Recitation – 03	Yvette Rada	3.62	646-781-5740	LKuo@jjay.cuny.edu	appt. & by appt.	1.121	M-4
Lecture– 04 *(1392)*	Selman Berger	3.77		SBerger@jjay.cuny.edu	Teaching days w/o	1.123	M/W-3
Recitation – 05	Christopher Kluge	3.62	646-781-5743	CKluge@jjay.cuny.edu	appt. & by appt.	1.101	W-4
Lecture– 05 *(1799)*	Marcel Roberts	5.61.04	646-557-4831	MARoberts@jjay.cuny.edu	Teaching days w/o	1.117	M/W-5
Recitation – 05	Melissa Fernandez	03.62	646-781-5676	MFernandez@jjay.cuny.edu	appt. & by appt.	1.63	M-6
Lecture– 06 *(1800)*	Donald Hoffman	3.77		DHoffman@jjay.cuny.edu	Teaching days w/o	1.115	M/W-5
Recitation– 06	Helen Chan	4.70.07	646-781-5686	HChan@jjay.cuny.edu	appt. & by appt.	1.107	W-6
Lecture– 07 *(2849)*	Yvette Rada	3.62	646-781-5740	YRada@jjay.cuny.edu	Teaching days w/o	1.109	M/W-7
Recitation– 07	Yvette Rada	3.62	646-781-5740	YRada@jjay.cuny.edu	appt. & by appt.	1.109	M-8



Period	***Time***
1	**8:00AM**
2	**9:25AM**
3	**10:50AM**
4	**12:15PM**
5	**2:50PM**
6	**4:15PM**
7	**5:40PM**
8	**7:05PM**
9	**8:30PM**

COURSE DESCRIPTION AND OBJECTIVES: This is the first of a two-semester course primarily intended for Forensic Science and Fire Science majors, as well as others interested in developing a strong knowledge base of general chemistry principles. It provides students with a better understanding of the chemical world around us and is a prerequisite for more advanced chemistry courses. The course introduces the basic properties and reactions of elements and compounds which will be further explored in greater detail in the second semester. The accompanying laboratory stresses principles of qualitative and semi-quantitative experimentation. The laboratory exercises are designed to foster a better understanding of chemical principles and ensure the necessary foundation skills are developed to work in a scientific laboratory safely and effectively. 3 hours lecture,1.5 hours recitation, 3 hours laboratory. 5 credits.

REQUIRED LECTURE AND RECITATION READING/MISC MATERIAL:

Lecture Text Bundle (this loose-leaf version is less expensive than the hardcover book and comes bundled with the required online homework software. The textbook chapter under discussion must be brought to class: (It is important ordering is done by ISBN#. Order ISBN-10: 0-321-787560.) Brown, LeMay, Bursten, Murphy & Woodward, Chemistry, The Central Science (12th ed.), Books a la carte Plus MasteringChemistry, New York: Prentice Hall, 2012

Scientific Calculator

One of the TI-30 scientific calculators shown in this syllabus, available at most electronic and department stores, is required to be brought to class each day. (TI-34 and TI-36 calculators are not TI-30 calculators and, therefore, are prohibited.) The calculator must be in the TI-30 group, such as TI-30XA, TI-30XS, TI-30X IIS.

Turning Technologies Response Card NXT (RCXR-03) (if assigned)

Note: You need not purchase this "clicker." You may borrow one from the college through the Science Department at no charge provided you agree in writing to return it on or before Department Exam Day (or within 10 days of dropping the course, whichever occurs first) and agree to replace it with an identical model if it is lost, stolen or damaged. Its estimate cost is $40.00. Failure to timely return either the borrowed clicker in good condition or a purchased replacement clicker will result in an SC "Science Stop" on your registration, financial aid, ability to obtain a transcript, etc. The stop can be removed by returning the clicker to Professor Francis Sheehan (05.66.16) or his designee and having the Loan Agreement you signed to obtain the device canceled in your presence. Allow at least one week for the stop to be removed.

LEARNING OUTCOMES – COURSE

Reasoning

- Demonstrate a basic understanding of chemistry at an entry-level of complexity and analyze real-world chemistry problems
- Understand the creative aspects of historical discoveries in chemistry
- Analyze data and perform basic aspects of statistical analysis

Knowledge

- Outline some of the basic principles of chemistry at an entry-level of complexity
- Understand how the history of scientific investigation relates to core chemical concepts
- Apply algebra and basic mathematical principles to solve chemistry problems that incorporate unit conversions and unknown variables
- Demonstrate an understanding of basic mathematical principles in chemistry; properties and reactions of elements and compounds; physical and chemical properties of solids, liquids, and gases

LEARNING OUTCOMES – DETAILED BY CHAPTER

CHAPTER 1 Learning Outcomes: Students will be able to:

- distinguish among elements, compounds and mixtures (including separation methods for mixtures).
- distinguish between chemical and physical change.
- know symbols for common elements.
- know common metric unit and SI units and prefixes, and be able to convert between temperature scales.
- know definition of density and be able to calculate quantities using it.
- use significant figures, scientific notation, SI units and dimensional analysis in calculations.
- know difference between accuracy and precision, and be able to identify which numbers in a measurement are exact.
- understand the differences between a scientific hypothesis and a theory.

Impediments to avoid to achieve CHAPTER 1 Learning Outcomes, include:

- confusing mass and weight
- having difficulty with algebraic manipulation (Conversion of temperatures between Celsius and Fahrenheit scales is particularly problematic.)
- equating density with mass
- being unfamiliar with the prefixes used in the metric system or not using them properly (e.g. 1 pm = 1×10^{-12} m vs. 1 m = 1×10^{12} pm)
- using precision and accuracy interchangeably
- not appreciating that in chemistry, measurement yields numbers determined with certain precision and in certain units; both depending on the type of the measuring device
- not finding exact numbers in calculations
- confusing significant figures and decimal places in arithmetic manipulations
- rounding off too soon in calculations or reporting the result to as many figures as the calculator produces
- not understanding the use of a conversion factor of exactly one
- in dimensional analysis problems not seeing that a physical quantity is a multiplication of value and units and, therefore, not performing algebraic operations on both the number and units

CHAPTER 2 Learning Outcomes: Students will be able to:

- describe and apply the basic postulates of Dalton's atomic theory.
- describe and apply the key experiments that led to the discovery of electrons and to the nuclear model of the atom.
- relate atomic weights to the masses of individual atoms and to their natural abundances.
- describe the organization of the periodic table including the locations of metals and nonmetals.
- identify organic compounds and their isomers, and name simple alkanes and alcohols.
- describe the structure of the atom in terms of protons, neutrons, and electrons.
- describe the electric charge and relative masses of protons, neutrons, and electrons.
- express the subatomic composition of isotopes using chemical symbols together with atomic number and mass number.
- distinguish between empirical formulas and molecular formulas.
- describe how molecular formulas and structural formulas are used to represent the compositions of molecules.
- distinguish between molecular substances and ionic substances in terms of their composition.
- write the complete atomic symbol for ions (including atomic number, mass number, and charge).
- use the periodic table to predict the charges of common ions.

- write the empirical formulas of ionic compounds, given the charges of their component ions.
- write the name of an ion given its chemical formula, or write the chemical formula given its name.
- write the name of an ionic compound given its chemical formula, or write the chemical formula given its name.
- name or write chemical formulas for binary inorganic compounds and for acids.

Impediments to avoid to achieve CHAPTER 2 Learning Outcomes:

- not understanding the concept of amu
- not seeing the difference between empirical and molecular formulas
- thinking that polyatomic ions can easily dissociate into smaller ions
- failing to recognize the importance of the periodic table as a tool for organizing and remembering chemical facts
- not relating the charges on common monoatomic ions to their position in the periodic table
- not realizing that an ionic compound can consist of nonmetals only, e.g., $(NH_4)_2SO_4$
- confusing the guidelines for naming ionic compounds with those for naming binary molecular compounds
- underestimating the importance of chapter 2

CHAPTER 3 Learning Outcomes: Students will be able to:

- balance chemical equations.
- identify simple combination, decomposition, and combustion reactions, predict their products, and write their balanced chemical equations.
- calculate formula weights and percentage composition by mass.
- convert grams to moles and moles to grams using molar masses, and convert number of molecules to moles and moles to number of atoms or molecules using Avogadro's number.
- calculate the empirical and molecular formula of a compound from percentage composition and molecular weight.
- calculate amounts, in grams or moles, of reactants and products for a reaction.
- determine the limiting reactant in a reaction and use it to determine the amounts of products formed.
- calculate the percent yield of a reaction.

Impediments to avoid to achieve CHAPTER 3 Learning Outcomes:

- confusing the subscripts in a chemical formula with the coefficients in front of the formula in a balanced reaction equation
- having difficulty grasping the meaning of a mole as a "collective," a mole of a substance contains a fixed number (6.022×10^{23}) of "building blocks" (atoms for most elements, molecules for molecular substances, formula units for ionic substances) in the same fashion as a dozen means 12 (eggs, people, items, etc.)
- not understanding that mass of 1 mole of substance X can be significantly different from the mass of substance Y
- not appreciating that the coefficients in an empirical formula are not exact whole numbers because of experimental or round-off errors and not understanding the existence of experimental error
- not understanding the difference between the amount of material present in the laboratory (or given in the problem) and the number of moles required by stoichiometry
- not understanding that the reagent that gives the smallest amount of product is the limiting reactant
- thinking a percent yield in excess of 100% is a good thing

CHAPTER 4 Learning Outcomes: Students will be able to:

- classify substances as either strong electrolytes, weak electrolytes or non-electrolytes and will be able to demonstrate an understanding of the differences between the three.
- given the molecular equation for a reaction be able to identify spectator ions and write the full ionic equation and/or the net ionic equation for the same reaction.
- recognize and differentiate between strong acids, weak acids, strong bases and weak bases.
- assign oxidation numbers to individual atoms in neutral substances and ions, and use these assignments to determine which substance is reduced which substance oxidized in a redox reaction.
- identify simple acid-base, precipitation and redox reactions and be able to predict the products of such reactions.
- calculate the molarity of a solution, and be able to convert between molarity, the number of moles present in a solution, and the volume of the solution.
- know how to prepare a dilute solution with a specific concentration and volume from a more concentrated solution.
- determine limiting reactants and/or calculate theoretical yields of reactions involving aqueous solutions, and use the results of a titration to determine the concentration of an unknown solution.

Impediments to avoid to achieve CHAPTER 4 Learning Outcomes:

- forgetting molarity is moles of solute per liter of solution, not per liter of solvent
- using moles instead of molarity in $M_{initial}V_{initial} = M_{final}V_{final}$
- disregarding rules for significant figures when calculating or using molarities
- thinking that water is a good conductor
- having a problem with the arbitrary difference between strong and weak electrolytes
- thinking that nonelectrolytes produce no ions in aqueous solution at all
- not being able to tell the difference between dissolution and dissociation
- confusing the symbols $\rightleftharpoons$ (equilibrium) and $\Leftrightarrow$ (resonance)
- not seeing that the net ionic equation for the reaction between strong acids and strong bases is always $H^+_{(aq)} + OH^-_{(aq)} \rightleftharpoons H_2O_{(\ell)}$
- trying to split polyatomic ions into smaller ions when they write net ionic equations

- thinking that a compound consisting of nonmetals only must be molecular (counter-example: $(NH_4)_2SO_4$ which is ionic!)
- not realizing that insoluble really means poorly soluble
- not appreciating the difference between equivalence point and end point
- thinking that an oxidation necessarily involves a reaction with oxygen and/or addition of an atom of oxygen to the formula
- thinking that all atoms of the same element must have the same oxidation number and that this number is uniquely related to the atom's location in the periodic table
- not realizing the equivalence point of a titration is the point where the stoichiometrically correct number of moles of each reactant is present and the end point of a titration is the point where the indicator changes and that they are not the same even though we choose an indicator that will change as close to the equivalence point as possible

CHAPTER 5 Learning Outcomes: Students will be able to:

- distinguish between kinetic and potential energy, and interconvert energy units.
- distinguish between the system and the surroundings in thermodynamics.
- state the first law of thermodynamics.
- understand the concept of a state function and be able to give examples of quantities that are and are not state functions.
- express the relationships among the quantities q, w, ΔE and ΔH, and will learn their sign conventions, including how the signs of q and ΔH relate to whether a process is exothermic or endothermic.
- use thermochemical equations to relate the change in enthalpy (ΔH) to the amount of substance involved in the reaction.
- relate temperature measurements and heat transferred by using heat capacities or specific heats (calorimetry).
- use Hess' law to determine enthalpy changes for chemical reactions.
- use standard enthalpies of formation to calculate ΔH° for reactions.
- understand the meaning of spontaneous process, reversible process, irreversible process, and isothermal process.

Impediments to avoid to achieve CHAPTER 5 Learning Outcomes:

- confusing power and energy and confusing heat with temperature
- failing to note that the first law of thermodynamics is the law of conservation of energy
- having difficulty determining what constitutes the system and what constitutes the surroundings
- overcoming the problematic sign conventions (+ and -) used in thermodynamics
- not realizing that a chemical reaction carried out in an open container occurs at constant pressure
- thinking that heat is a state function since enthalpy is a state function and $\Delta H = q_p$
- not being able to tell the difference between enthalpy of a reaction ΔH_{rxn} (in kJ) and molar enthalpy (per one mole of one of the reacting species, in kJ/mol)
- not realizing that Hess' law is a consequence of the fact that enthalpy is a state function
- not knowing where a list of standard enthalpy values can be found in the text (Appendix C)
- having difficulties with calculating a value of $\Delta H_f°$ for a compound not listed in Appendix C from $\Delta H°_{rxn}$ and the available $\Delta H_f°$ values
- thinking that any reaction in which a given compound is formed, regardless of the type of reactants, should be called a formation reaction
- neglecting to notice that a formation reaction leads to a formation of 1 mole of a compound

CHAPTER 6 Learning Outcomes: Students will be able to:

- explain what photons are, and be able to calculate their energies given either their frequency or wavelength.
- using the Bohr theory, explain how line spectra relate to the idea of quantized energy states of electrons in atoms.
- relate the quantum numbers to the number and type of orbitals, and recognize the different orbital shapes.
- interpret radial probability function graphs for the orbitals.
- draw an energy-level diagram for the orbitals in a many-electron atom, and describe how electrons populate the orbitals in the ground-state of an atom, using the Pauli exclusion principle and hund's rule.
- use the Periodic Table to write condensed electron configurations and determine the number of unpaired electrons in an atom.
- calculate the wavelength of electromagnetic radiation given its frequency or its frequency given its wavelength.
- order the common kinds of radiation in the electromagnetic spectrum according to their wavelengths or energy.
- calculate the wavelength of a moving object.
- explain how the uncertainty principle limits how precisely we can specify the position and the momentum of subatomic particles such as electrons.

Impediments to avoid to achieve CHAPTER 6 Learning Outcomes:

- having difficulty converting between angstroms, nanometers, etc. and meters
- having difficulty switching from the language of certainties to the language of probabilities
- being put off by the mathematics, vocabulary, foreign names, and an apparent intangibility of the information
- being unaware that the quantum theory laid foundations for such areas as spectroscopy and nanotechnology, just to mention a few
- confusing Bohr's orbits with orbitals; most spellcheckers do not recognize the word "orbital"
- mistakenly thinking that spectral lines represent energy levels
- having difficulty associating a given line in an emission (or absorption) spectrum with a transition between two energy levels
- drawing 2, 6, 10, and 14 "boxes" in orbital diagrams for s, p, d, and f orbitals, respectively

Prerequisites

Open to students who have not had high school chemistry, or who received a grade of C and lower in high school chemistry, or who received a grade of less than 80% on the Chemistry Regents. Co-requisite: MAT 104 or MAT 105.

GRADING POLICY: This two credit course has two components—lecture and recitation. Each component has a separate grading policy which contributes a percentage to the overall course grade. Except as noted herein, the course grade is the sum of the grades earned in the lecture (90%) and recitation (10%). There is no lab component to Che 101. The laboratory exercises will be performed in Che 102. Unethical/unprofessional conduct will result in a failing course grade and referral for additional action. Deviation from this syllabus, which represents a contract, are not permitted except in extraordinary circumstances approved by the course coordinator and mad eapplicable to all sections. A TI-30 model calculator is required for this course. See calculator details in this syllabus. Students not seated along a wall may use a tablet or laptop in the classroom but only to view their e-book, class PowerPoints, or take notes. Students using a computer along a wall or viewing social media or non-chemistry related data during class time even for a short period of time will be marked absent and may be subject to other sanctions.

Lecture: Four lecture exams will be given. The lowest grade on the first three exams is dropped and each of the grades on the remaining two exams constitute 25% of the course grade (50% for both). There are no make-up exams. The policy of dropping one exam was instituted to accommodate absence and extraneous circumstances resulting in an uncharacteristically poor performance. During final exam week a fourth lecture exam is given that counts as 40% percent of the course grade. The grade on the fourth exam cannot be "dropped." If clickers are assigned, students may earn an additional 2% toward the overall lecture grade by achieving an in lecture correct clicker response semester grade of at least 75%. After week one, students who do not bring a required clicker to a class and use it when requested will be marked absent.

Recitation: Recitation constitutes 10% of the course grade, based on successfully completing twelve of fourteen online homework assignments by their due dates, as well as attendance and meaningful participation in the recitation sessions. Active participation during the recitation sessions by all students benefits all students, providing varying approaches to mastering the subject material, incentive for success, and progress evaluation. Consequently, attendance and participation are NOT optional. Each excessive absence (more than two) or failure to meaningfully participate in recitation sessions will result in a 10% reduction per occurrence of the grade total earned on the assigned online homeworks. After week one, students who do not bring a required clicker to a class and use it when requested will be marked absent.

ATTENDANCE POLICY: Students enrolled in this course are *required* to attend all lecture and recitation sessions of the section for which they registered. In general, there are two one period lecture sessions and a one period recitation session each week. Excessive absences (defined above) will result in a reduction in the grade. Attendance is taken solely from roll sheets circulated at the beginning and/or end of each session, and/or by using clickers if available. Lateness or early departure (resulting in missing no more than 15 minutes of a session) counts as ½ absence. Students missing more than 15 minutes of a session will be counted as absent. If the college is officially closed, thereby canceling all classes, an announcement will be found on 237-8000, and broadcast on AM stations WINS (1010), WOR (710), WCBS (880), WADD (1280), WMCA (570), WLIB (1190), and WFAS (1230), as well as FM stations WCBS (101.1) and WBLS (107.5). If a class will be cancelled for extraordinary circumstances, the instructor will email an announcement using Blackboard to enrolled students as soon as practicable. This has not happened in recent memory.

ACTIVE COLLEGE E-MAIL/BLACKBOARD ACCOUNT REQUIRED: Students are expected to maintain active and accessible college email and Blackboard accounts. Blackboard will be used to send emails and may be used to post announcements, handouts, additional study materials, text supplements, grades, etc. Use the CUNY Portal Login page help features for a forgotten username or password, or contact DoIT, 212-237-8200 for other help. Verify your CUNY email address is correctly listed on Blackboard and keep the mailbox from filling up and refusing delivery, because you will be responsible for the contents of any email sent to that account. When emailing instructors for this course, start the email's subject line with the course and section number (e.g., Che 101-01) followed by a brief description. Include your full name in the body of every email. Emails that do not contain these descriptive details may be considered spam, and remain unopened and unanswered. Students are expected to check email regularly.

TUTORING: Although a considerable amount of remediation is done during the course, when necessary students are encouraged to attend-- on a first come, first served basis—free tutoring offered to students requesting such help. Scheduled weekly or biweekly appointments are encouraged. "Crash" sessions immediately before an exam are discouraged. A student who fails an exam (less than 60.00%) is required to sign into and attend at least one hour of tutoring weekly until the next exam. An additional hour of tutoring is required for every seven days, or part thereof, homework is past due. (The homework must still be completed.) Failure to sign in and attend required tutoring and provide attendance documentation counts as a recitation absence per occurrence. Attendance at tutoring is automatically forwarded to the instructor by the Math and Science Resource Center.

HOMEWORK: Graded online MasteringChemistry® (**MC**) assignments must be successfully completed by their due dates to receive full credit. Some credit will be awarded for late assignments. Frankly, the knowledge you gain by doing the assignments, even if late, justifies the effort even if no credit were awarded. You will be emailed (using Blackboard) your MasteringChemistry course code which you will use to register for your specific course and section on MasteringChemistry. You may switch sections on MasteringChemistry later but all your homework data and grades up to that point will be lost, so register correctly the first time. Use your JJ email address as your Login ID. Although more information will be sent to you in an email, for now please do not use your SSN anywhere on the site. Homework is also shown on this syllabus. The exercises at the back of each chapter in the text are grouped by topic. Do as many red numbered textbook problems in each group as possible. The answers at the back of the book should only be used after a thorough attempt at answering each problem has been made. Much is learned from the struggle to derive the correct answer. Much is lost by simply seeing "how the book does it." You may do the MasteringChemistry problems before or after the textbook problems. Be prepared to provide answers in recitation to exercises similar to those listed as homework in this syllabus. We have made great effort to ensure that ample tools are available to help students succeed in this course, if the tools are used diligently.

WRITING ACROSS THE CURRICULUM (WATC): Reports written by Forensic Scientists must be clear, concise, and unambiguous. Consequently, where a homework assignment requires a written explanation, spelling, grammar, and clarity of expression will be considered in determining the "correctness" of the answer proffered. It is important that careful attention is directed to writing what you mean and meaning what you write.

STUDENTS WITH DISABILITIES: Qualified students with disabilities will be provided reasonable academic accommodations if determined appropriate by the Office of Accessibility Services (OAS), 212-237-8031, located in room L.66.00. Prior to granting disability accommodations, verification of a student's eligibility must be timely received from OAS by the Chemistry Courses Coordinator Francis Sheehan (FSheehan@jjay.cuny.edu), and the instructor, from the OAS. It is the student's responsibility to initiate contact with the OAS and to follow the established procedures for having the accommodation notice sent to both the course coordinator and the instructor.

ACADEMIC INTEGRITY: Students who succeed in this course and graduate with a degree in Forensic Science may be hired by government or private agencies to analyze evidence and testify in a court of law, placing in jeopardy another person's reputation and/or liberty. Dishonesty of any kind cannot and will not be tolerated. Students are expected to become thoroughly aware of the "John Jay College Policy on Academic Integrity" (and other college policies), available on the college's Web site. Sanctions to the extent permitted by the policy will be imposed and any written material submitted may be transmitted by the instructor to Turnitin.com (or equivalent service) to help analyze its originality. See the Undergraduate Bulletin for the College's Policy on Plagiarism and Cheating, which will be strictly enforced. Plagiarism includes copying ASA or homework answers from others. A handout will be provided you so that there will be no misunderstanding of what constitutes plagiarism. You are required to do your own work to avoid severe grade and disciplinary penalties. Use of a headset at any time is prohibited. The College subscribes to Turnitin.com and Blackboard has a similar module called SafeAssign. Any written assignments submitted may be subject to evaluation by these or similar programs.

Statement of the College Policy on Plagiarism

Plagiarism is the presentation of someone else's ideas, words, or artistic, scientific, or technical work as one's own creation. Using the ideas or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. It is the student's responsibility to recognize the difference between statements that are common knowledge (which do not require documentation) and restatements of the ideas of others. Paraphrase, summary, and direct quotation are acceptable forms of restatement, as long as the source is cited. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The Library has free guides designed to help students with problems of documentation. (John Jay College of Criminal Justice Undergraduate Bulletin, http://www.jjay.cuny.edu/academics/654.php, see Chapter IV Academic Standards.)

Note: You will be presented with a handout called "The Perils of Plagiarism" that you will be required to read and return signed to your professor on the next meeting date.

Extra Work:

Extra work (more studying, more practice exercises) is encouraged to help you improve your performance on an *upcoming* exam. The grade for the course is strictly computed as defined on the previous page. Students must focus on doing well on the standardized assessments (exams, online homework, class participation, attendance, etc.) on the assessment date stated on this syllabus. The time to do the extra work is before the exam is given and/or the homework is submitted, as extra work after-the-fact is not provided. The grading policy stated herein sufficiently accommodates an unexpected absence and uncharacteristic poor performance during the semester.

Grade of Incomplete:

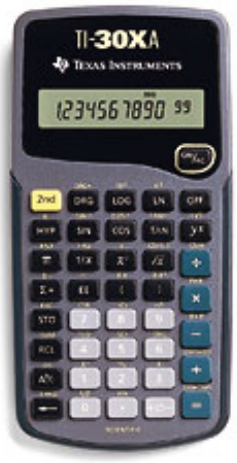
A grade of incomplete will only be issued if the student is absent from Exam 4 and the average of the best two of the first three exam grades applied to the missed Exam 4 results in a passing grade. If a grade of Incomplete is assigned, it is the student's responsibility to resolve it during the following semester on the specific date published on the Undergraduate Academic Calendar on www.jjay.cuny.edu. The exam(s) must be scheduled at least two weeks in advance via email with the Chemistry Courses Coordinator (FSheehan@jjay.cuny.edu), who will administer the exam(s). The exam(s) will only be administered on the published date, except in extraordinary documented circumstances . Incompletes must be avoided because they will prevent advancement to more advanced chemistry courses the following semester since successful completion of this course is a pre-requistite for more advanced chemistry courses. Incompletes that remain unresolved after the published make-up date are automatically changed to FIN.

"SC" Science Equipment/Key Registration Stop:

Did you know that an "SC" Science Equipment/Key Stop (also known as Hold) restricts students from registrating, receiving financial aid, requesting transcripts, receiving certification letter of attendance, receiving the diploma, etc.? JJC Policy Reg.017 12/15/12

COME TO LECTURE/RECITATION PREPARED:

Do your homework. Stay up with the course material. Stay slightly ahead of the professor with your studying. Bring the chapter under discussion with you to class. You will need a blue or black ink pen to sign the attendance sheet, a TI-30 calculator, your notebook and any book/manual required. Any TI-30 calculator is acceptable (e.g., TI-30XA, TI-30XS, TI-30XIIS, etc.).



TI-30XA

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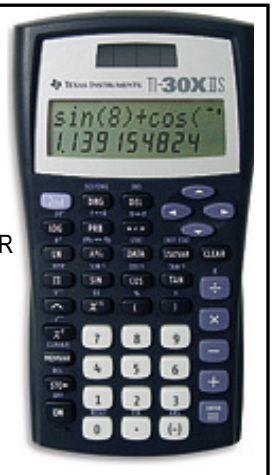
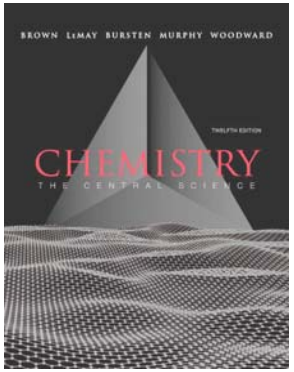


TI-30X IIS

AND

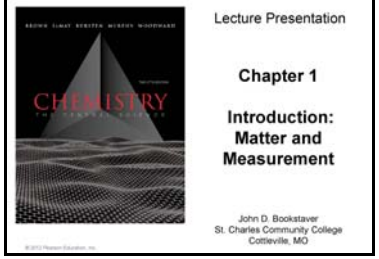


The chapter under discussion must be brought to class.

AND

Turning Technologies NXT (RCXR-03)
(if assigned)

AND



If PowerPoint slides are used in class and posted in advance for you to download, print them and bring them to class so you may take notes on them.

PREPARE FOR EXAMS AND THEN COME TO EXAMS PREPARED:

Study, study and then study some more. The more you study the "luckier" you will be in earning a high grade. If you are ever unsure of what to do on an exam day, check the chemistry lab door, 3.66NB, for instructions.

Arrive early:

If you don't have a class immediately prior to the exam, please arrive approximately 15 minutes before your scheduled exam. The attendance sheet will be circulated in the hallway outside the classroom. Note your seat number as you sign the attendance sheet. The seat number will be the four digit number in the middle column, immediately to the left of your signature. It will likely not be your usual seat number. Remember or write down that number, as you will need to know it when you enter the classroom.

Sit in assigned seat:

When instructed to enter the classroom, enter and sit in the seat labeled with your exam seat number.

Follow the instructions of the proctors and hallway monitors:

The proctors assigned to your classroom will walk you through these instructions. It is important that you not try to anticipate what to do next and get ahead of the proctor. Doing so will not result in more exam time. Listen carefully to what they say and follow their instructions so the exam can be promptly started.

Put all materials, including electronic devices, under your seat:

Put all materials other than a pen, pencil and your TI-30 calculator (with its case removed) under your seat. Make sure all chemistry related books, manuals, and notes, as well as rubber bands, PDAs and cell phones,[1] are placed in a closed bag or other opaque covering under your seat and not visible to you or anyone else in the room. It is your responsibility to make sure no one can gain an unfair advantage from material(s) brought with you to the college on exam day. Please note: You are not permitted to have any non-medical electronic devices, notes or other chemistry-related material on your person at any time during exams. If you do not bring a bag or other opaque covering with you on exam day to store your materials under your seat, leave the material(s) at home.

Relax:

The exam will fairly assess the chapters/topics you were told would be on the exam.

[1] Cell phones, PDAs, and similar devices, and their accessories, may not be accessible, accessed or used during the exam for any purpose. (If truly extraordinary circumstances, such as a seriously ill family member, requires the cell phone to be on vibrate, write your name and seat# on the envelope provided by the proctor, who will store the phone on the front desk and provide it to you should it vibrate.)

Che 101 Lecture Schedule

*Dates in parentheses are Wednesday sessions

LECTURE	DATE*	TOPICS / Readings	TEXTBOOK EXERCISES (Also see MChomework note on right)
1	08/27	Course Intro, MC, Math Review 1.1 The Study of Chemistry 1.2 Classifications of Matter 1.3 Properties of Matter	 1.1, .5, .11, .13 1.2, .3, .17, .19, .21
2 3	(08/29) (09/05)	1.4 Units of Measurement 1.5 Uncertainty in Measurement 1.6 Dimensional Analysis	1.23, .25, .27a, .31 1.33, .35, .37, .39, .41 1.45, .47, .55
4 5	09/10 (09/12)	2.1 The Atomic Theory of Matter 2.2 The Discovery of Atomic Structure 2.3 The Modern View of Atomic Structure	2.9, .11 2.1, .13, .15 2.19, .21, .25
6 7	(09/19) 09/24	2.4 Atomic Weights 2.5 The Periodic Table 2.6 Molecules and Molecular Compounds	2.29, .33 2.4, .37, .53 2.41, 2.43
8 9	10/01 (10/03)	2.7 Ions and Ionic Compounds 2.8 Naming Inorganic Compounds 2.9 Some Simple Organic Compounds	2.57, .59 2.61, .63, .69, .71 2.75, .77, .79
10	**10/10◊**	**LECTURE EXAM 1**	**CHAPTERS 1-2**
11 12	10/15 (10/17)	3.1 Chemical Equations 3.2 Some Simple Patterns of Chemical Reactivity 3.3 Formula Weights 3.4 Avogadro's Number and the Mole	3.1, .9, .11a-c, .13 3.3, .15, .17, .19 3.21a-c, 3.23a-c, .25 3.27, .33, .35b
13 14	10/22 (10/24)	3.5 Empirical Formulas from Analyses 3.6 Quantitative Information from Balanced Equations 3.7 Limiting Reactants	3.5, .43, .47, .49, .53a 3.59, .61, .63 3.7, 3.71, .73, .77
15 16	10/29 (10/31)	4.1 General Properties of Aqueous Solutions 4.2 Precipitation Reactions 4.3 Acids, Bases, and Neutralization Reactions	4.11, .13, .15, .17 4.19, .21, .23, .27 4.29, .35, .37, .39
17	**11/05**	**LECTURE EXAM 2**	**CHAPTER 3**
18 19	(11/07)† 11/12	4.4 Oxidation-Reduction Reactions 4.5 Concentrations of Solutions 4.6 Solution Stoichiometry and Chemical Analysis	4.45, .47, .49, .51a-b, .55, .57 4.59, .61, .65, .73, .75 4.79, .81, .83
20 21	(11/14) 11/19	5.1 The Nature of Energy 5.2 The First Law of Thermodynamics 5.3 Enthalpy 5.4 Enthalpies of Reaction	5.1, .13, .17, .19, .21, .23 5.5, .25, .27, .29, .31 5.8, 5.33 5.35, .37, .45a, .47
22 24	(11/21) (11/28)	5.5 Calorimetry 5.6 Hess's Law 5.7 Enthalpies of Formation 5.8 Fuels and Foods	5.49, .53, .57 5.11, .61, .65 5.67, .71, .73a-b 5.81, .83, .85
23	**11/26**	**LECTURE EXAM 3**	**CHAPTER 4**
25 26	12/03 (12/05)	6.1 The Wave Nature of Light 6.2 Quantized Energy and Photons 6.3 Line Spectra and the Bohr Model 6.4 The Wave Behavior of Matter	6.2, .11, .13, .15, .17, .19 6.21, .23, .25 6.33, .35, .37, .39 6.43b, .47a
27 28	12/10 (12/12) ✋	6.5 Quantum Mechanics and Atomic Orbitals 6.6 Representations of Orbitals 6.7 Many-Electron Atoms 6.8 Electron Configurations 6.9 Electron Configurations and the Periodic Table	6.5, .49, .51, .53, .55 6.57, .59 6.61, .63 6.8, .65, .67, .69 6.71 (using only the periodic table)

Fall 2012 Semester Details

First day of clases: 08/27
No classes: 9/3, 9/17-18, 9/25-26, 10/8, 11/22-25
Last day of classes: 12/12
Reading Day: 12/13
Department Exam Day: 12/14
Finals Week: 12/14 – 12/21
Occasionally due to classroom space limitations on Dept. Exam Day, Reading Day is used to give General Chemistry Departmental Exams.

Do not make vacation or other plans for any part of 12/13-12/21 because exam dates are subject to change

SYMBOLS USED IN THIS SYLLABUS

S or s = Study. Each time you see the letter it should be a reminder to study. The more you study, the "luckier" you will be come exam time.

MC = MasteringChemistry®
= required and graded online homework.
Go to http://MasteringChemistry.com

◊ Wednesday 10/10 is a JJ Monday. Monday classes meet. Wednesday classes do not meet.

† Last day to withdraw without academic penalty is Friday, 11/09

‡ Last Day of Classes, 12/12

✋ **LOANED CLICKERS – AVOIDING THE STOP**

Students who drop or withdraw have 10 days from the drop or withdrawal date to return a Loaned Clicker to avoid the "SC" Science Department stop. For all others, Clickers must be returned and Loan Agreement cancelled by 12/14 at 5pm to avoid an "SC" Science Dept. equipment registration stop being imposed.

Timely Return or Replace Loaned Clickers

EXAM 4

COVERING CHAPTERS 5-6 (cumulative) WILL BE HELD ON DEPARTMENT EXAM DAY or A DATE SET BY REGISTRAR.