

San José State University
College of Science/Department of Chemistry
CHEM 1A, General Chemistry (40099), Section 1, Fall 2019

Course and Contact Information

Instructor:	Resa Kelly, Ph.D.
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Office Hours:	MW 10:30am – noon
Class Days/Time:	MWF 9:30 am - 10:20am
Classroom:	Science Building (SCI) 142
Prerequisites:	Proficiency in high school chemistry or CHEM 010 (with a grade of "C" or better; "C-" not accepted) or instructor consent; proficiency in high school algebra and eligibility for MATH 019; Writing Enrollment Group W-I or W-II, or ENGL 1AF with a grade of CR, or ENGL 1A with a grade of C- or better.
Learning Assistants* and their email:	Jonathan Adam - adamjo97@gmail.com ; Michael Huynh - michael.huynh@sjsu.edu ; Parnit Jhutti - parnit.jhutti@sjsu.edu

***Learning Assistants** are undergraduate students who are prepared to provide support for student learning in interactive classroom environments. They have taken CHEM 1A and they are selected for their interest in teaching as well as their understanding of the content. They will assist with facilitating small group interaction when you do Reef Polling questions and Think-Pair-Share exercises.

Course Format : Technology Intensive

This course requires you to make use of multiple forms of technology. Online homework, *MindTap*, will be required and i-clicker/reef polling will be used in class to measure your understanding. In addition, you will be expected to consistently and frequently check the Canvas Learning Management System at <http://sjsu.instructure.com> for course materials such as the syllabus (greensheet), handouts, notes, assignment instructions, etc. Online quizzes will also be administered through Canvas. During the first 3 weeks of the semester when students are still trying to get enrolled, they may be added to Canvas as guests until a decision is made on enrollment. Please email Professor Kelly should you wish to be added as a guest until your status in the class changes. You are responsible for regularly checking with the messaging system on Canvas through MySJSU to learn of any updates. See [University Policy F13-2](#) at <http://www.sjsu.edu/senate/docs/F13-2.pdf> for more details.

Canvas Learning Management System

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on my faculty on [Canvas Learning Management System course login website](#) at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through [MySJSU](#) at <http://my.sjsu.edu> to learn of any updates.

Course Description

Topics including stoichiometry, reactions, atomic structure, periodicity, bonding, states of matter, energy changes, solutions using organic and inorganic examples. Lab program complements lecture. Prerequisite: Proficiency in high school chemistry or CHEM 010 (with a grade of "C" or better; "C-" not accepted) or instructor consent; proficiency in high school algebra and eligibility for MATH 019; Writing Enrollment Group W-I or W-II, or ENGL 1AF with a grade of CR, or ENGL 1A with a grade of C- or better. Misc/Lab: Lecture 3 hours/lecture 1 hour/lab 3 hours.

Course Goals

The overall goal is for the student to be able to demonstrate an understanding of the basic principles of chemistry through performance on reef polling questions, quizzes, exams and online web homework. Lab and seminar complement lecture; however, please note that sometimes lab will be used as an introduction to the concepts covered in lecture and other times the labs will reinforce what is covered

in the lecture. In the case of an introduction, you may need to do preparatory reading for the lab. The chapters in the textbook (Brown et. al.) that coincide with the labs are marked on the lab greensheet (Homework Section p. 11-13).

Course Learning Outcomes (CLO)

Course learning outcomes describe the behavior of learning that students taking the course are expected to demonstrate proficiency in as they progress through the course and at the end of the course on the final exam.

Upon successful completion of this course, **the student will be able to:**

- 1) apply significant figures rules in all calculations providing the correct number of significant figures and units (Exp 1, 2, 6, 7, 10, 11 and 12)
- 2) convert between different units using conversion factors and dimensional analysis (Exp. 1)
- 3) name elements, provide their symbols and determine the number of protons, neutrons, electrons and nuclei in atoms of elements.
- 4) calculate percent composition given a molecular formula and molecular formula given the percent composition (Exp. 2)
- 5) name salts, acids, bases and covalent compounds and provide formulas for these given a molecular formula (Exp. 3)
- 6) explain the difference between solubility and dissociation in water and apply this knowledge to acids, bases and salts (Exp. 3)
- 7) identify weak and strong acids and bases and insoluble compounds using dissociation and solubility rules (Exp. 3 and 4)
- 8) construct molecular, total and net ionic equations for double displacement reactions (Exp. 3 and 4)
- 9) identify redox reactions including identifying the oxidation, reduction, oxidation agent and reducing agent (Exp. 5)
- 10) calculate oxidation numbers and balance redox reactions (Exp. 5)
- 11) perform stoichiometry calculations for chemical and non-chemical systems whether the limiting reactant is known or unknown (Exp. 6 and 10)
- 12) calculate molarity of a solution starting with pure solute or with a concentrated solution as well as explain how to prepare a solution of a given molarity (Exp. 6)
- 13) provide brief descriptions of the accomplishments of Planck, Einstein, Thompson, Rutherford, Millikan, Rydberg, Bohr, de Broglie and Schrodinger; and how these contributed to understanding the atom
- 14) explain how a cathode ray tube works and how it assisted in understanding the electronic configuration of atoms.
- 15) convert between wavelength, energy and frequency for light and understand the relationship between absorbed light and color (Exp. 7)
- 16) calculate the energy and wavelength of a given electronic transition in hydrogen (Exp. 7)
- 17) define what each quantum number represents and how to obtain quantum numbers for any electron in an atom
- 18) analyze an atom or ion of a given element providing the full electronic configuration, the abbreviated electronic configuration, a representative diagram of the orbitals and the unpaired number of electrons; then use this information to determine the possible oxidation states of the element and the magnetic properties of the element (Exp. 8)
- 19) define electronegativity, electron affinity and ionization potential
- 20) organize a set of element or monoatomic ions in order of increasing atomic radius, ionic radius, first ionization energy and electronegativity

- 21) determine whether a bond is metallic, ionic, covalent or polar covalent
- 22) represent covalent and ionic bonding using Lewis dot structures
- 23) evaluate the molecular geometry, hybridization and polarity of a covalent molecule (Exp. 9)
- 24) evaluate the type of molecular bonding (s or p) in a covalent molecule and identify the orbitals used for bonding
- 25) explain the properties of temperature and pressure including how these are measured and convert between different units for these properties, including the use of different liquids in the measurement of pressure (Exp. 10)
- 26) derive the relationships between pressure, volume, temperature and moles for ideal gases; perform calculations using these relations, including when they are combined with stoichiometry or percent composition problems (Exp. 10)
- 27) define and apply Dalton's Law of Partial Pressures and Graham's Law of Diffusion and Effusion to mixtures of gases (Exp. 10)
- 28) use the results from the Kinetic Molecular Theory of Gases to explain the relationship between kinetic energy, average molecular velocity, temperature, pressure, density and number of collisions when an ideal gas undergoes a change of state
- 29) describe and provide examples of the five types of intermolecular forces and be able to analyze the forces present in a substance and organize a set of compounds in order of increasing intermolecular forces (Exp. 11)
- 30) define the terms and explain the temperature dependence of surface tension, viscosity, vapor pressure, normal boiling point, capillary action; and be able to organize a set of compounds in increasing order for most of these properties (Exp. 11)
- 31) explain the concept of specific heat and apply the equation to heating or cooling of materials
- 32) perform heat transfer calculations for systems with and without phase changes (Exp 12)
- 33) calculate heats of reaction using Hess' Law or heats of formation, including combining the process with stoichiometry, and identify whether the reaction is exothermic or endothermic (Exp 12)
- 34) name unsubstituted and substituted alkanes, alkenes and alkynes given a drawing of a molecule and vice versa
- 35) identify all the isomers associated with simple aliphatic hydrocarbons and predict boiling point and vapor pressure change as a function of the number of carbons
- 36) identify and name some organic functional groups in a molecule

Required Texts/Readings (Required)

Textbook/Technology Requirements

1. [MindTap](#) by Cengage is both an online textbook and an electronic homework system.
2. Lab Manual for Chemistry 1A - Sold during the first 2 weeks of school by the Chemistry Student Club (DH20) - They only take cash. (approximately \$20)
3. Reef-Polling Register for CHEM 1A with Prof. Resa Kelly. You must be registered to earn points and you must be registered by the last day to add the class. For information on how to get set up visit the following site <https://vimeo.com/200122938>. Note: One important element is when you create your account, you must include your 9-digit SJSU ID. eCampus will loan you an i-clicker if you do not have a cell phone or do not wish to use your phone in class. However, most students find that using their cell phone is easier than checking out an i-clicker.
4. Hand-held scientific calculator - Must be non-programmable and should have $\log x$, 10^x , $\ln x$, e^x and x^y keys. - You will not be allowed to use your programmable calculator or your cell phone during a lecture or lab exam, or lab quiz.

Other Readings – Not Required by this section of Chem 1A, but useful if you go on to take Chem 1B

Chemistry: The Central Science – Brown, LeMay and Bursten – 10th, 11th or 12th edition (Or a college level Chem. text if you feel comfortable with a different textbook.)

Library Liaison

Yen Tran (email: yen.tran@sjsu.edu) - If you are interested in learning how to best use our library resources feel free to contact Yen and she can help you locate chemistry related reading material.

Course Requirements and Assignments (Required)

After every class, Professor Kelly will provide an overview of the key concepts covered. This will be in Canvas under Discussions and listed by the date that the class was taught. You are expected to use these overviews like you would use a study guide –to master the concepts. Next, check the MindTap site for homework problems assigned. Problems will be assigned after each class and you will be given a **short** range of time to complete the assigned problems. Be very mindful of the due dates and times of assignments. Homework will be counted as approximately 12.5% of your grade. This is done to help you demonstrate your effort in the course while it helps you prepare for exams.

Additional Information:

- [University Syllabus Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) at <http://www.sjsu.edu/senate/docs/S16-9.pdf>.
- Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

The [University Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf), Course Syllabi (<http://www.sjsu.edu/senate/docs/S16-9.pdf>) requires the following language to be included in the syllabus:

“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.”

Grading Information

At the end of the semester you will receive a single grade for the course. The following grading scale is used for determining your overall grade which is a weighted average of lecture (65%) and lab (35%). Your percentage is rounded to the one tenth place and that number determines your grade. Please note that grades are non-negotiable; however, if an error is made you should contact your professor immediately

- [University Syllabus Policy S16-9](http://www.sjsu.edu/senate/docs/S16-9.pdf) (<http://www.sjsu.edu/senate/docs/S16-9.pdf>)
- [University Attendance and Participation Policy F15-12](http://www.sjsu.edu/senate/docs/F15-12.pdf) (<http://www.sjsu.edu/senate/docs/F15-12.pdf>)

Determination of Grades

A record of your grades on Exams, Quizzes and Reef polling will be posted on CANVAS. Your homework percentage will be available through the MindTap website. You are responsible for making sure that the scores posted on CANVAS are consistent with the grade you earned. If a mistake is made, you have 1 week from the time you receive your graded exam or quiz to contact Dr. Kelly to request the correction. If you notice a blank where the grade should be, check on it immediately. Homework and REEF participation will be consistently tracked throughout the semester and your final earned percentages in these areas will be entered in the tabulation of your final grade.

Incompletes will not be given unless a strong compelling reason with proof is furnished to support the need for an incomplete. Incompletes will not be granted because the university won't late drop you or because the low grade will disqualify you, put you on probation. Incompletes do not remove past scores on exams. Incompletes are only given to persons who have completed at least 80% of the course. They are removed by completing pending tasks. I do not provide special projects to make up incompletes.

PLEASE note I DO NOT provide extra credit work at the end of the semester.

PLEASE note that I provide bonus points on exams through a few special bonus point questions. This is done to push your grade up a bit just in case you feel some grading was harsh or uneven. This may amount to as much as an extra 2%. At the end of the semester I decide letter grades using the scale provided without providing additional bonus. You do not get to keep your exam after it is graded, but there is a review period in which you may attend office hours to examine your graded exam.

I. Homework and Participation (160 points)

1. Homework (100 points) – MindTap: We will be using an online learning homework system called [MindTap](#) this semester. Please follow the instructions to register for it. Your access will be good for 6 months. Homework will be assigned after every class and it will be due within two days of being assigned. Your homework percentage will be valued equal to one exam grade. For example, if you get 85.0% for your homework percentage, you will earn 85.0 points out of 100 points for homework in the course.

2. REEF Polling/iClicker Participation (50 points): Throughout each class you can expect to be asked to participate and iClickers/ REEF polling will be used to check your participation and help you to determine if you are mastering the material. You must complete at least 50% of the clicker questions offered during a class period to be rewarded for your participation. It is very important that you either register your iClicker right away or **you sign your cell phone up for REEF polling (preferred by most students)**, but you must choose only one of these options (Clicker or REEF). If you do not register, you will not earn credit for your participation. Your participation will be shown on Canvas; however, there is a max of 50 points that you can get for doing these questions. Each time a REEF/Clicker question is offered you can earn 1 point for participation and 1 point for answering the question correctly. There will likely be close to 80 points offered during the semester. Once you reach 50 points, you will have earned 100% of your REEF/iClicker points. No extra credit is given. Thus, if you earn points in excess of 50 points, you have earned 100% of your reef polling points. (for example, if you earned 65 reef polling points out of 80 possible points, you will get 100% of your reef points because you have reached the max of 50 counted points. If you earn less than 50 points, your grade is simply your percentage calculated from a total of 50 points.

3. Chemistry Connections (10 points). Throughout the semester you will be asked to contribute 1 video (no longer than 3 minutes) or one still image (photo) of a real-life connection to the concepts you have learned in Chem 1A. You only have to submit one video or one photo and you will have three opportunities to submit it. For example, up until one class day past Exam 1- Sept. 30th you will be invited to contribute your video or photo of a real life/world connections you observe that is representative or related to the content/concepts you just learned in CHEM 1A associated with Exam 1 concepts. You might notice the connection in another class (be sure to ask your instructor if you may use video footage from their class) or you might notice a connection in your normal daily routine. I will ask that you upload the video or photo to **both Canvas and Instagram account: sjsu_chem1a_kelly** and also to Canvas under assignments (#Chemistryiseverywhere). The next deadline will be after exam 2 on Oct. 25th and third and final deadline will be after exam 3 on Dec. 2nd. On Canvas you will be asked to provide a brief explanation for how the video/picture fits with the content you are learning.

II. Quizzes/Exams/Final Exam (475 points)

1. Online Quizzes (75 points): There will be three Canvas quizzes (25 points per quiz) approximately 2 weeks before each major exam. You will be allowed at least one additional attempt after your first try. The quiz will typically be made available after class on a Friday and it will be due prior to the start of class on Monday morning.

2. Exams (100 points per exam or 300 total points): There will be three in class exams. The percentage you earn on an exam will represent the points earned out of 100 points. For example, if you earn 92.0% by getting 55.2 points out of 60 points on an exam, you will receive a 92.0 out of 100 as your grade on the exam.

To prepare for the exam, I will provide a pre-test, but it is not due for a grade. The pre-tests will be available on Canvas, under module – Exam Preparation.

3. Final Exam – (100 points) - The final exam is a comprehensive multiple choice/True-False item test (maximum of 80 questions) that covers CHEM 1A topics. **The final exam shall be held on Tuesday, Dec. 17th from 7:15AM to 9:30AM in SCI 142.**

More details can be found in

[University policy S17-1](http://www.sjsu.edu/senate/docs/S17-1.pdf) (<http://www.sjsu.edu/senate/docs/S17-1.pdf>) which states that

“Faculty members are required to have a culminating activity for their courses, which can include a final examination, a final research paper or project, a final creative work or performance, a final portfolio of work, or other appropriate assignment.”

Grading Scale for the lecture portion of CHEM 1A

Grade	Points	Percentage
A plus	616 to 635	97 to 100%
A	578 to 615	91.0 to 96.9%
A minus	559 to 577	88.0 to 90.9 %
B plus	533 to 558	84.0 to 87.9 %
B	502 to 532	79.0 to 83.9%

Grade	Points	Percentage
B minus	483 to 501	76.0 to 78.9%
C plus	451 to 482	71.0 to 75.9%
C	406 to 450	64.0 to 70.9%
C minus	381 to 405	60.0 to 63.9%
D plus	356 to 380	56.0 to 59.9%
D	337 to 355	53.0 to 55.9%
D minus	318 to 336	50.0 to 52.9%

Your total number of points divided by the total amount of lecture points (625) gives you your Lecture %.

The Lab portion of the class must be passed with 55% or better. The total percentage earned determines your grade based on the grading scale provided above. The total lab grade constitutes 35% of the final grade. Your Teaching Assistant (TA) will review how your grade in lab is determined. If you should fail lab (55.0% or less or due to unexcused absences) this will result in an F grade for the FULL COURSE, regardless of how well you are doing in lecture. Details regarding the lab grade will be provided in the lab/seminar green sheet(syllabus).

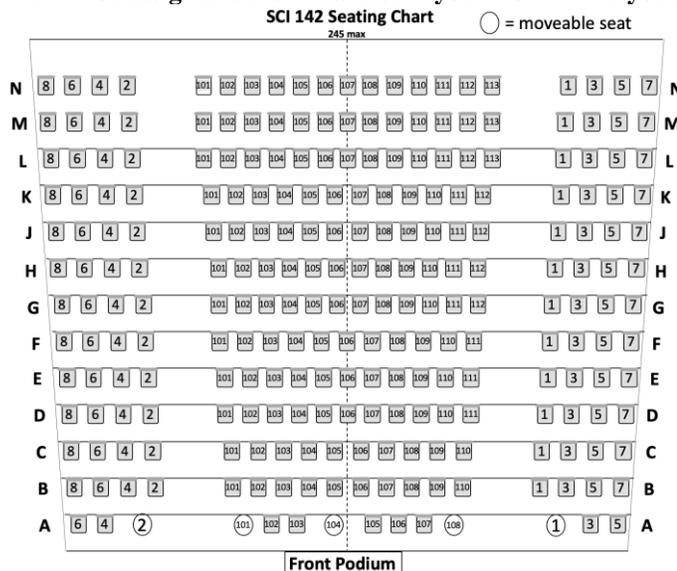
- **There is no extra credit.**
- **Late work or missed work is not graded and is counted as a zero. For example, if you miss a homework assignment, you will not be granted an extension, especially if your reason is that you did not observe the due date on the assignment or you ran out of time. Thus, the penalty for late work is a score of zero.**

Classroom Protocol

- No headsets for cell phones or headphones/ear devices for music technology devices are allowed during lectures.** If you wear them, be prepared to remove them or you may be asked to leave the lecture.
- Notebook computers will only be allowed if you sit in the very back rows.** Tablet computers/Ipads are allowed.
- Cell phones will not be allowed to double as your simple scientific calculator. They should be turned off and placed in a backpack during exams.
- If you are late for class on the day of a test or quiz, you will not be given extra time to finish nor will you be allowed to make-up the exam or quiz. If you take mass transit—you need to plan ahead to make sure that you get to the campus in plenty of time.
- If you miss a class, you are responsible for getting the information you missed from a peer who was present and you should check Canvas. Reef polling questions are not made up.

Lecture Exam Rules

(There will be assigned seats—make sure you know where you sit!)



- 1) You must sit in the seat you are assigned. Check the seating chart well before the exam date. It will be posted a week before, both in lecture and online. Find the seat in the lecture hall a few days before the exam so that you can relax and prepare for the test. If you reach your seat and it is broken, please inform Dr. Kelly and a new one will be assigned. No sitting on the floor in the back of the lecture hall or on the stairs.

- 2) No programmable calculators. No sharing of calculators. (This applies to lab also). Remove the calculator lid before the exam.
- 3) Turn baseball caps so that the brim is to the back.
- 4) No cell phones, iWatches or techno gadgets. They must be stored under your seat or in your backpack and be sure to mute or turn it off.
- 5) No head phones or other devices in ears unless they are prescribed hearing aids!
- 6) Only scratch paper that is given to you may be used.
- 7) Place backpacks under your seat or at the front of the room so as to make sure that others don't trip trying to get out.
- 8) No talking during an exam, even if you have handed in your exam.
- 9) Be mindful of all instructions oral and written.
- 10) No notes, open books, lab manuals or any other materials should be available.

Safe and Respectful Community

We hope that the classroom and laboratory will serve as an environment that will promote learning and the development of new ideas, as well as be a safe and respectful community. Behavior that interferes with the normal academic function in a classroom or lab is unacceptable. Students exhibiting this behavior will be asked to leave the class. Examples of such behavior include:

- a) Persistent interruptions or using disrespectful adjectives in response to the comments of others.
- b) The use of obscene or profane language.
- c) Yelling at classmates and/or faculty.
- d) Persistent and disruptive late arrival to or early departure from class without permission.
- e) Physical threats, harassing/bullying behavior, or personal insults (even when stated in a joking manner).
- f) Use of personal electronic devices for texting, social-media engagement or watching movies or clips of movies.

University Policies

Per University Policy S16-9 (<http://www.sjsu.edu/senate/docs/S16-9.pdf>), relevant information to all courses, such as academic integrity, accommodations, dropping and adding, consent for recording of class, etc. is available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/> Make sure to review these university policies and resources with students.

If applicable, include links to department and college-level rules, requirements and services.

CHEM 1A / General Chemistry, Fall 2019, Course Schedule

Schedule is subject to change with fair notice made in class or on Canvas under announcements.

Course Schedule

Week	<i>Tentative Lab Schedule</i>	Date Q=Quiz, E=Exam	Topics, Readings, Chapters in <i>e-book – MindTap that address topics</i>
1	<i>Attend Lab to Claim Space</i>	Aug. 21, Aug. 23	Greensheet/Syllabus, Sig. Figs, Units, Element symbols, density (Ch. 1)
2	<i>Check-in, Safety Discussion</i>	Aug. 26, Aug. 27, Aug. 30	States of Matter, Atomic Structure Basics, Atomic Weights, Naming Ionic and Molecular Compounds, Polyatomic ions, Formulas (Ch. 2)
3	<i>Exp. 1 Basics</i>	Sept. 4 th , Sept. 6 th	Molecular and Empirical Formulas, Reactions (atom rearrangement), Symbolic Representations, Balancing Equations (Ch. 3)
4	<i>Exp. 2 – Hydrate</i>	Sept. 9 th , Sept. 11 th , Sept. 13^{Q1}	Molar Mass Calculations, Stoichiometry, Theoretical and Actual Yield(Ch. 3), Precipitation Rxns, Solubility of Ionic Compounds(Ch.4)
5	<i>Exp. 3 - Conductivity</i>	Sept. 16, Sept. 18, Sept. 20	Activity Series, Redox- simple and complex (exchanging electrons) (Ch. 4)
6	<i>Exp. 4 – Mystery Bottles</i>	Sept. 23, Sept. 25, Sept. 27^{E1}	Acid-Base Naming, Reactions, Titration (Ch. 4) Exam 1
7	<i>Exp. 5 – Activity Series</i>	Sept. 30, Oct. 2 nd , Oct. 4 th	Light Evidence – Atoms, Electromagnetic Radiation, Electronic Structure of Atoms,

Week	<i>Tentative Lab Schedule</i>	Date Q=Quiz, E=Exam	Topics, Readings, Chapters in <i>e-book – MindTap that address topics</i>
			Quantum Mechanical Model of the Atom (Ch. 6)
8	Exp. 6 – Acid In Vit. C/Titration	Oct. 7 th , Oct. 9 th , Oct. 11 ^{Q2}	Quantum Numbers, Electron Configurations, Orbital Diagrams, (Ch. 6) Atom Size(Ch. 7)
9	Exp. 7 – Light & Color	Oct. 14 th , Oct. 16 th , Oct. 18 ^{Lab Exam I}	Ionization Energy, Electron Affinity (Ch.7) Covalent Bonding and Molecular Structure, Electronegativity, Lewis Dot Structures (Ch. 8)
10	Exp. 8A Periodic Properties	Oct. 21 st , Oct. 23 ^{E2} , Oct. 25	Resonance, Formal Charge, Bond Polarity, Molecular Shape/Geometry, VSEPR, (Ch. 8(+), Theories of Chemical Bonding -hybrid orbitals, sigma and pi bonds(Ch. 9) - Exam 2
11	Exp. 9 – Molecular Models	Oct. 28, Oct. 30 th , Nov. 1st	Gas Laws (Boyle’s, Charles, Avogadro’s -Laws, Ideal Gas Law Equation, Dalton’s Law of Partial Pressures (Ch. 10)
12	Exp. 10 - Gas Law Exp. 8B - Semiconductors	Nov. 4 th , Nov. 6 th , Nov. 8 ^{Q3}	Liquids, Intermolecular Forces, Surface Tension (Ch. 11)
13	Exp. 11 – Intermol. Forces	Nov. 13 th , Nov. 15th	Viscosity, Capillary Action, Vapor Pressure, Phase Changes (Ch. 11)
14	Exp. 12 – Hess’ Law/ Heats of Reaction	Nov. 18 th , Nov. 20 th , Nov. 22	Thermochemistry, Calorimetry, Heating Curves- Phase Change (Ch. 5)
15	No Lab	Nov. 25 ^{E3}	Exam 3
16	Lab Checkout	Dec. 2 nd , Dec. 4 th , Dec. 6 th - Lab Exam II	Hess’ Law, Standard Heat of Formation (Ch. 5)Diagrams Solids – Crystalline Arrangements
17	No Labs	Dec. 9	Chemical Mixtures (Ch. 13), Organic Chemistry(Ch. 21) Review

Online Quiz Dates

Three Quizzes – Quiz 1 – Assign Sept. 13th /due Sept. 16th at 9:00AM, Quiz 2 - Assign Oct. 11th /due Oct. 14th at 9:00AM, and Quiz 3 – Assign Nov. 8th /due Nov. 13th at 9:00AM

In Class Exam Dates

Three Exams - Exam 1 - Sept. 27th (Friday), Exam 2 - Oct. 23th (Wednesday) and Exam 3 - November 25th (Monday), all exams are held in SCI 142 from 9:30 to 10:15AM (5 minutes for handing in exams at the end).

Final Exam is Tuesday, Dec. 17th – 7:15 to 9:30 AM in SCI 142