Instructor: Dr. Arno Papazyan  
E-mail: papazyan_arno@smc.edu

OFFICE HOURS: Mondays 4:35pm-5:00pm  
Tuesdays and Thursdays 6:05 pm-7:00 pm @ Sci 217 (or Sci 255 by announcement)  
Online anytime

LECTURES (Dr. Papazyan): Tuesday, Thursday 3:30 pm - 6:00 pm Sci 140  
LAB (Section 1389; w/ Dr. Papazyan): Monday 12:30 pm - 4:30 pm Sci 332  
LAB (Section 1390; w/ Dr. Nauli): Friday 11:45 pm - 3:45 pm Sci 301

PREREQUISITES: Chem 10 and Math 20

COURSE DESCRIPTION:  
This is the first semester of a two-semester, standard, first-year college chemistry course. Covered topics include units of measurement, significant figures, dimensional analysis, atomic structure and the periodic table, naming ionic compounds, acids and bases, and simple covalent compounds, stoichiometry, reactions in aqueous solution, introductory oxidation-reduction reactions, behavior of gases, thermochemistry, electronic structure of atoms and periodicity, ionic bonding and ionic compounds, covalent bonding, molecules, molecular shapes, molecular orbital theory, valence bond theory, intermolecular forces, properties of liquids and solids, and introductory organic chemistry.

MEANS OF COMMUNICATION WITH INSTRUCTOR:  
Simply talking to me works great. E-mailing me is also a very efficient way of communication. I monitor my email, and respond quickly (if a response is needed). I might send extra materials or announcements by email. It is your responsibility to check your SMC email several times a day or make sure that your SMC email is forwarded to an account that you do check several times a day.

CLASS WEBSITE:  
My home page:  
http://homepage.smc.edu/papazyan_arno  
and the pages thereunder contains links and information that should be valuable in your studies.

REQUIRED TEXTBOOK & RECOMMENDED “HOMEWORK”:  
Purchase the bundle from the SMC bookstore with a pass for OWLv2 online homework and learning system. (ISBN for the bundle: 9781285992983) If you buy the book elsewhere, you need to purchase a 6-month pass from Cengage.  
To register for the online homework system OWLv2 go to:  
https://login.cengagebrain.com/course/E-24YE5BTGNJ2AB  
If you go to the Cengage OWLv2 site some other way and are asked for a course code in the registration process, it is: E-24YE5BTGNJ2AB  
Homework is not graded, but not doing homework, especially on topics in which you have any weakness, is equivalent to saying “I don’t wish a good grade in this course”. If you don’t use OWLv2, then make sure you can solve a good portion of the end-of-chapter problems, and all of the “Practice Questions” and “Suggested Problems” (from end-of-chapter problems) posted at my home page for each chapter. The benefits of developing self-initiated studying habits go far beyond Chem 11; it will ensure a successful career for the rest of your life.
OTHER REQUIRED ITEMS:

**Calculator**
A basic scientific calculator such as Texas Instruments TI-30Xa is required. If you wish to use another, comparable calculator, you need to receive my approval. Graphing or programmable calculators, computer-like devices including tablets or phones are not permitted during any quizzes or exams. Please respect this rule; I don’t want to take away your calculator during an exam.

**Scantron forms**
Standard scantron forms (Form No. 882-E) are needed for exams and quizzes. Always bring at least one scantron form with you to lectures or labs, just in case.

**Lab materials**
- **Safety Goggles**: ANSI Z87.1 chemical splash goggles are required for all laboratory experiments. Safety goggles must fit snugly to your face, and be able to fit over your prescription eye wear. They may be purchased at the SMC Bookstore. Students without goggles will not be allowed to perform the scheduled experiment.
- **Laboratory Coat**: A knee length (41-42 inch) laboratory coat must be worn at all times while in the laboratory when anyone is conducting experiments. Regular, white lab coats are sufficient and available at the SMC Bookstore.
- **Closed Shoes**: Wear closed shoes at all times while in the laboratory.
- **Nitrile Gloves**: Nitrile gloves must be worn when directed to do so by your instructor and/or by the lab manual. These gloves are available at the SMC Bookstore.
- **Laboratory Locker Card**: This must be purchased at the SMC Bookstore. You need to turn this in to your instructor when you check into your locker (not later than Week 2), in order to be allowed access to your laboratory equipment.

STUDY HABITS:
Prepare for each class by reading appropriate sections of the book, resources posted on my website, and any relevant materials I send. You don’t need to achieve a full and deep understanding at that point, but mainly an exposure to the ideas and procedures to be covered. This will make it easier for you to spend more time in class listening, learning, and asking questions instead of just copying notes.

In order to keep up, it is highly recommended that students schedule **at least 2 hours every day** to study, do homework, and complete the lab assignments. Increase the amount of time you dedicate if necessary. Don’t relax just because you have a few days between today’s class and the next one. Use the intervening days to get better at the subject. Don’t relax just because you won’t have a test or quiz for a few weeks. You need to keep up with the coverage whether you are being tested very soon or not. Diligently work through all the suggested homework problems, and then do some more. You will learn best by struggling to solve them and by making mistakes. You must work through and master the problems by **yourself** to do well in this class. Following somebody else (solutions manual, instructor, tutor, friend, online videos, etc.) answering the questions is not enough, even if you feel that you follow and understand the logic. Again, you must solve problems **yourself**, and lots of them. That is the only way. Don’t think that it doesn’t apply to you, individually. It does.

Come to the laboratory having already done the Pre-lab assignment. Don’t try to do it right before the lab.

If you are having trouble with the homework, lab assignments, or lecture material, get help right away. Get in contact with me about the difficulties you are experiencing. Form a study group with your classmates to do homework together and discuss concepts. Take advantage of the free tutoring offered in the Science Learning Resource Center (LRC) in Sci 245. More information on LRC can be found at [http://www.smc.edu/AcademicPrograms/Tutoring/Pages/Science-LRC.aspx](http://www.smc.edu/AcademicPrograms/Tutoring/Pages/Science-LRC.aspx)

The Learning Disabilities Program (located in the Math Complex, Room 75, 310-434-4684) also conducts diagnostic testing and offers study strategy classes for students. More information can be found at [https://www.smc.edu/StudentServices/DisabilityResources/Pages/Learning-Disabilities.aspx](https://www.smc.edu/StudentServices/DisabilityResources/Pages/Learning-Disabilities.aspx)
EXPECTED BEHAVIOR AND CONSEQUENCES OF NOT MEETING THEM:

- Act respectfully, collegially, and ethically.
- **Come to class or lab on time.** You may not be allowed to the class or the lab if you are late.
- **Do not leave the class unless there is an emergency.** Let me know in advance if you need to leave early. It is a distraction to everyone, in several ways.
- **Do not use mobile devices or laptops.** You can expect me to ask you to put away your electronic devices, if I see them in your hand or in front of you. Failing to comply would necessitate your removal from the lecture room.
- **Do not create noise or other distractions** (audible conversations, laughing, giggling, etc.) during class time.
- Do not eat, drink (except water), or smoke in the classroom. **No food or drinks are allowed in the labs.**
  - Failing to meet the above expectations will cause you to be removed from the classroom.

Obviously, cheating and any other similar conduct violating the SMC Code of Academic Conduct will not be tolerated, and will be treated according to guidelines contained in the Code. Students must read and understand the SMC Code of Academic Conduct available at:


The rules will be strictly enforced and academic dishonesty in any form will not be tolerated. This includes, but is not limited to, cheating on exams, changing answers on graded assignments, copying of lab reports, and falsification of lab data. If such dishonesty is discovered, all students involved will obtain an automatic zero on their assignment, be reported to the campus disciplinarian, and possibly receive an F grade in the course. A zero score obtained due to cheating will count towards your final grade – it cannot be substituted or dropped!

ATTENDANCE:

You will be dropped from the class if you fail to come to any lecture or laboratory period during the first two weeks of classes. It would be a serious mistake to think that you can afford to miss lectures on a regular basis. By missing lectures you lose your connection with the material and will find it hard to know what’s important for performing well in the course. **By omitting lectures, you are accepting a very high risk of an undesirable grade.**

EXAMS and QUIZZES:

There will be four exams and four quizzes. There are **no make-up exams or quizzes**. If an exam or a quiz is missed, they will be dropped as the lowest. Exams and quizzes cannot be taken at a different time than the time scheduled in the syllabus. Bring standard scantron 882-E forms, pencils, eraser, and calculator for the exams and quizzes. Do not use the mini-scantron forms. Bags and backpacks will be left against the walls on days we have an exam or a quiz. Students who are late will not be given extra time. Students arriving after another student turned in their test and left the classroom cannot take the test. There are no restroom breaks; so take care of restroom needs accordingly before quizzes and exams. Your calculator needs to be taken out of its sleeve before taking the tests, and the sleeve needs to be left in your bag or backpack. Calculators and scantrons may be checked at the beginning of tests. If you haven’t practiced enough to already know the few facts to be “memorized”, cheating will not help you. Overwhelming majority of the questions are about concepts, reasoning, and methods, and unlikely to benefit from such cheating. If you are caught, expect very serious consequences. It’s simply not worth trying. Cell phones should be turned off (not quiet mode; actually turned off). Wearing electronic (non-mechanical) watches are not allowed.

FINAL EXAM:

The final exam is a standardized multiple-choice test from the American Chemical Society appropriate for this course. It is **cumulative**; therefore it includes all of the topics covered. It has a hefty weight in determining your overall grade, and every student must take it. Poor performance on the final can easily lower your grade by one letter grade (A to B, B to C, for example) and an excellent performance can raise it by a letter grade. There is **no make-up final exam.** Missing the final exam results in a final exam grade of zero. The final exam grade will be available online. The final exam will not be returned to the students. You can buy an exam guide and a pass for an online practice exam at:

http://shopping.na1.netsuite.com/s.nl/c.3773982/sc.11/category.144048/f
HOMEWORK:
Homework is not graded. However, you are very strongly encouraged to work on as many of the questions at the end of the covered chapters as possible. Practice questions and selected problems from the end of chapters are available at the course website. Try to answer them one at a time. If your answer was incorrect the first time, re-try using the correct answer (from the key) as a guide. If you still cannot solve it, study the detailed solution provided before proceeding to the next question. You would do well to use the OWLv2 system which gives you plenty of opportunities to practice. You can’t do well without solving a lot of problems. Ignoring this advice almost guarantees an undesirable grade. Practice questions, suggested problems from the book, and the examples solved in class are necessary for learning the concepts. But remember: they don’t necessarily mimic the exam and quiz questions.

LABORATORY:
Students will partner with another student in the lab. The partner will remain the same for the duration of the course, except when the partner is absent. Students must record and have access to their partner’s name and contact information. Students must also know their assigned locker. Locker cards will be collected at check-in during the first lab meeting. Locker cards will be returned at the end of the semester at the time of the check-out unless the student damaged or broke something during the semester. They can be returned to the SMC bookstore for a refund.

Lab Experiments are designed to give students experience handling chemicals, equipment, and performing important techniques. They also tie in with the material discussed during lectures. Lab Exercises (i.e. “dry labs”) are designed as in-class skill-building worksheets, with instructor assistance available as needed. The lab activities are shown on the course schedule. The documents needed for the labs (Prelab, Procedure, and Lab Report) are available under the “Labs” link at:

http://homepage.smc.edu/papazyan_arno

Do not use the departmental page to avoid the possibility of using the wrong documents.

- Students must print out these documents and bring them to the appropriate lab periods.
- Prelab assignment should be completed before coming to the lab. If you are still working on your prelab after the lab period started, you cannot perform the lab, and therefore you will miss that lab.
- Students who do not show up on time and with completed pre-lab assignment cannot perform the experiment and receive a zero for that experiment.
- Students cannot perform the lab if they do not have the proper “personal protection equipment” (PPE) or appropriate clothing. This will also result in a zero for the experiment. Don’t come to the lab with open shoes or flip-flops, since you will not be allowed to perform the experiment.
- Lab reports are due on the next scheduled lab period. There is no late returning of reports. If you don’t return the report on time, the grade for that lab will be zero.
- There are no make-up labs. The lowest two lab grades will be dropped.

Each lab is worth 10 points, broken down as follows:

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Pre-lab assignment</td>
<td>1 pt</td>
</tr>
<tr>
<td>Pre-lab quiz</td>
<td>1 pt</td>
</tr>
<tr>
<td>Safety, lab technique &amp; etiquette</td>
<td>1 pt</td>
</tr>
<tr>
<td>Lab report</td>
<td>7 pts</td>
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</table>

How to get a zero on an experiment:

- Do not return the lab report on time.
- Come to the lab without the completed prelab assignment and acceptable clothing.
- Come sufficiently late to the lab to miss a significant part of the lab lecture.

Students must take a safety quiz and receive 90% or higher before they can perform their first experiment. The links to the safety guidelines and the quiz as well as the lab rules and other information can be found under the “Labs” links of the course website given above. The quiz can be re-taken once if the 90% threshold was not passed the first time. Failing to pass the safety quiz will prevent you from performing any experiments, and you will be dropped from the class as a result. Your safety quiz score is the one you received on your first attempt. However, up to 10% will be

• No pre-lab assignment or quiz for Excel and Inorganic Nomenclature exercises; lab report for each is 10 pts.
added to it if you pass the second time (but not to exceed the score you received on your second attempt). If your safety quiz score is higher than the lowest lab grade among the 11 remaining after dropping the lowest 2 of the 13 labs, it will replace the lowest of the 11 lab grades.

**ADD, DROP, AND RELATED ATTENDANCE POLICIES:**

**DROP POLICY**

- You will be dropped if you fail to show up to any lecture or lab during the first two weeks of the semester. You might be able to prevent that by notifying the instructor in advance, citing a reasonable and verifiable excuse. Remember that not showing up to the first or second lab meeting will also cause you to be dropped, even if you attended the lectures.
- **Missing more than 2 labs during the semester is not allowed even with documentable excuses, as it indicates that you were unable to honor your commitment to the schedule of the section in which you registered. **Please do not test this rule.
- It is your responsibility to drop yourself out of the class if you are not doing well in the class and do not want to receive a failing grade. Do not rely on the instructor to drop you.
- It is also your responsibility to pay attention to appropriate drop deadlines set by the College.

**ADD POLICY**

If you want to add, you must:

- Show up to every lecture and lab during the add period, which can be roughly taken to be the first week of classes.
- Submit your name, SMC student ID, email.
- You may be required to sign a statement declaring that you fulfill the prerequisites for the course, and that you will add the course within 10 hours of receiving the add code. In any case, if you cannot add the course in 10 hours, or it turns out that you lack the prerequisites, you will likely not be able to remain in the course even if you end up adding it after the 10-hour limit.

However, doing the above does not guarantee a spot in the class, obviously. Students will be added only if there is space available. All chemistry classes can only have a maximum of 28 students per laboratory section. Students on the official waitlist are added first, according to the order in which they appear on the list. If there is space available after the waitlist is exhausted, a lottery will be held to determine who is added to the roster. The procedure rules out any judgement calls by the instructor.

**IMPORTANT DEADLINES:**

- Last day to withdraw to receive a refund: February 25, 2018
- Last day to withdraw to avoid a "W": February 25, 2018
- Last day to withdraw to guarantee a "W": May 13, 2018

**STUDENTS WITH DISABILITY AND/OR MEDICAL PROBLEMS:**

Students with disability-related needs or medical problems that might interfere with student’s performance in class should notify the instructor and Disabled Student Services right away so that appropriate accommodations can be arranged. Do not wait until right before the exam.
## GRADING:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 midterm exams (highest 3 of 4)</td>
<td>170</td>
<td>51 pts.</td>
</tr>
<tr>
<td>6 quizzes (highest 6 of 8)</td>
<td>25</td>
<td>15 pts.</td>
</tr>
<tr>
<td>11 Labs (highest 11 of 13)</td>
<td>10</td>
<td>11 pts.</td>
</tr>
<tr>
<td>Final Exam</td>
<td>230</td>
<td>23 pts.</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1000</td>
<td><strong>100 pts.</strong></td>
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</tbody>
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\[
\% \text{ Grade} = \frac{\text{Points Earned}}{1000} \times 100
\]

<table>
<thead>
<tr>
<th>% Grade*</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
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<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>56-69</td>
<td>D</td>
</tr>
<tr>
<td>0-55</td>
<td>F</td>
</tr>
</tbody>
</table>

* These cutoffs are applied after your average grade is rounded to the nearest integer. For example, 89.6 would be treated as 90 and would correspond to an A, while 89.4 would receive a B.

The lowest exam, the lowest two quizzes, and the lowest two lab grades are dropped. The highest 3 exams, 6 quizzes, and 11 labs contribute to the overall grade.

The letter grades are determined mathematically from the sum of your grades, and are **not negotiable**. They represent your overall performance, **not your needs or aspirations**. The only way to improve your letter grade is to improve your performance by:

- following the study advice provided by your professor during the semester or session, not after
- **asking** for more detailed and personalized explanations of points that are unclear to you, again during the semester or session

There will be no extra credit opportunities. **DO NOT ASK!**

Final exams have slightly varying levels of difficulty in terms of raw scores, as indicated by the national norms of each edition. The raw score of the final exam will be multiplied by a factor to align the raw score corresponding to 70th percentile (according to the ACS national norms for the given edition) with the middle of the range for a letter grade of C (74.5 out of 100). For example, if 45 out of 70 (which is 64 out 100) corresponds to 70th percentile in the ACS national norm for that edition, the raw scores are multiplied by 74.5/64=1.164, with no further adjustments or a “curve”.

**Letter grades are determined completely algorithmically (mechanically) based on your numerical grades. Do not ask me to “curve” the grades. If you want a higher grade, study harder, better, and longer, come to the office hours, and send your questions by email throughout the semester. You will find out that I enthusiastically provide as much help as possible until you understand a point you are having difficulty with. For earning the grade you wish, the rest is up to you.**

**DO NOT CONTACT ME ABOUT RAISING YOUR LETTER GRADE!**

**DO NOT CONTACT ME ABOUT OTHER WAYS TO END UP WITH A HIGHER LETTER GRADE!**

**DOING SO HAS HAD A ZERO RATE OF SUCCESS, AND HAS A ZERO CHANCE OF SUCCESS IN THE FUTURE!**
STUDENT LEARNING OUTCOMES:

1. The student will demonstrate the ability to solve scientific problems by following logical procedures based on well-established scientific principles.
2. The student will follow written procedures used in the general chemistry laboratory accurately and safely. When completing a lab report, the student will correctly apply the scientific method by making reasonable estimates of experimental uncertainties and drawing appropriate conclusions based on the gathered data and scientific principles.
3. The student will be able to relate microscopic theories to macroscopic observations specifically using the chemical principles developed in Chemistry 11 to explain observable phenomena.

COURSE OBJECTIVES:

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

1. Write balanced chemical equations, including net ionic and redox equations.
2. Apply dimensional analysis and demonstrate a working knowledge of metric units including those for mass (g), length (m), area (m²), volume (L & m³), energy (J), quantity (moles) and concentration (M) as well as metric prefixes and abbreviations such as kilo, micro, nano, etc.
3. Describe basic separation techniques such as filtration, chromatography, and distillation.
4. Describe the quantum mechanical model of the atom and perform calculations using the Bohr model.
5. Write electronic configurations for the various elements.
6. Describe the regions of the electromagnetic spectrum (such as IR, UV, etc.)
7. Use both the IUPAC and common names (Stock notation) to write the names of inorganic compounds, given their formula. Also students should be able to write the correct formula of a compound, given its name.
8. Identify common organic functional groups and apply basic IUPAC rules of organic nomenclature.
9. Calculate enthalpies of reaction from bond energies, from standard heats of formation, and from calorimetric data.
10. Demonstrate a basic understanding of the first law of thermodynamics, state functions, and fundamental definitions such as "system," "state," "surroundings," etc.
11. Apply knowledge of intermolecular forces (IMF's) to explain trends such as melting and boiling points of compounds.
12. Demonstrate an understanding of atomic structure, including the number of protons, neutrons, and electrons in an element, the definition of isotopes, and how to determine average atomic masses.
13. Draw Lewis structures for simple molecules and polyatomic ions and use them to predict hybridization, geometry, and polarity for these species.
14. Use valence bond theory and molecular orbital theory to describe the bonding in simple chemical species.
15. Describe the properties of ideal gases and predict deviations from ideal behavior in real gases.
16. Describe the basic tenets of kinetic molecular theory, including a qualitative understanding of molecular speed distributions, the determination of root-mean-square speeds, and relative rates of effusion of ideal gases.
17. Perform calculations involving the gas laws, including basic PV=nRT calculations, kinetic molecular theory, partial pressures, and changes in variables such as pressure, temperature, and volume.
18. Describe the nature of solids, liquids, gases, and solutions.
19. Demonstrate knowledge of solubility rules and be able to predict the solubility of simple inorganic compounds.
20. Demonstrate knowledge of the principles involved in chemical bonds, including the continuum from ionic and covalent bonding, and the definition of bond- and molecular-polarity.
21. Demonstrate knowledge of trends in the periodic table such as atomic radius, ionic radius, electronegativity, ionization energy, common chemical reactivity, etc.
22. Describe metallic bonding, particularly related to its differences from ionic or covalent bonding and how these differences produce metallic properties.
23. Define concentration units for solutions and solve solution stoichiometry problems, including those involving dilution.
24. Perform complex stoichiometric calculations including balancing equations and predicting products, and those involving different phases of matter, limiting reactant problems, and problems involving mixed units.
25. Demonstrate a working knowledge of laboratory safety.
26. Demonstrate knowledge of the importance of the proper waste disposal.
27. Demonstrate good observational skills.
28. Demonstrate laboratory note taking skills, especially related to the production of an organized laboratory notebook.
29. Demonstrate proper usage of the laboratory balance.
30. Use significant figures in calculations and measurements.
31. Describe and explain sources of error, including random and systematic error. Be able to explain how these errors affect precision and accuracy.
32. Perform basic lab skills such as gravity filtration, solution preparation, dilution, and titration.
33. Demonstrate the use of volumetric glassware including pipettes, burets, and volumetric flasks.
34. Demonstrate the proper and skillful use of basic lab equipment (ring stands, Bunsen burners, etc.) in both qualitative and quantitative experiments.
35. Demonstrate ability to read a barometer.
36. Achieve a reasonably high degree of reproducibility, accuracy and precision in their lab results.
**LECTURE SCHEDULE** (The pace of covering the subjects in lectures may vary slightly in practice)

<table>
<thead>
<tr>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td><strong>Feb 13</strong></td>
<td>Lecture: Ch. 1 (Chemical Foundations)</td>
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</tbody>
</table>
| **Feb 20** | **Lab Safety Quiz**  
Lecture: Ch. 2 (Atoms, Molecules, and Ions) | **Feb 22** | Lecture: Ch. 2 (Atoms, Molecules, and Ions) |
| **Feb 27** | Lecture: Ch. 2 (Atoms, Molecules, and Ions) | **Mar 1** | Quiz 1  
Lecture: Ch. 3 (Stoichiometry) |
| **Mar 6** | Exam 1  
Lecture: Ch. 3 (Stoichiometry) | **Mar 8** | Lecture: Ch. 3 (Stoichiometry) |
| **Mar 13** | No class (Institutional Flex Day) | **Mar 15** | Quiz 2  
Lecture: Ch. 4 (Types of Chem. Reactions and Soln. Stoichiometry) |
| **Mar 20** | Lecture: Ch. 4 (Types of Chem. Reactions and Soln. Stoichiometry) | **Mar 22** | Lecture: Ch. 4 (Types of Chem. Reactions and Soln. Stoichiometry) |
| **Mar 27** | Lecture: Ch. 5 (Gases) | **Mar 29** | Quiz 3  
Lecture: Ch. 5 (Gases) |
| **Apr 3** | Exam 2  
Lecture: Ch. 6 (Thermochemistry) | **Apr 5** | Lecture: Ch. 6 (Thermochemistry) |
| **Apr 10** | Spring Break | **Apr 12** | Spring Break |
| **Apr 17** | Lecture: Ch. 6 (Thermochemistry) | **Apr 19** | Quiz 4  
Lecture: Ch. 7 (Atomic Structure and Periodicity) |
| **Apr 24** | Quiz 5  
Lecture: Ch. 7 (Atomic Structure and Periodicity) | **Apr 26** | Lecture: Ch. 7 (Atomic Structure and Periodicity) |
| **May 1** | Lecture: Ch. 7 (Atomic Structure and Periodicity) | **May 3** | Quiz 6  
Lecture: Ch. 8 (Bonding: General Concepts) |
| **May 8** | Exam 3 (v.1)  
Lecture: Ch. 7 (Atomic Structure and Periodicity) | **May 10** | Lecture: Ch. 8 (Bonding: General Concepts) |
| **May 15** | Exam 3 (v.2)  
Lecture: Ch. 8 (Bonding: General Concepts) | **May 17** | Quiz 7  
Lecture: Ch. 9 (Covalent Bonding: Orbitals) |
| **May 22** | Lecture: Ch. 9 (Covalent Bonding: Orbitals) | **May 24** | Lecture: Ch. 10 (Liquids and Solids) |
| **May 29** | Quiz 8  
Lecture: Ch. 10 (Liquids and Solids) | **May 31** | Exam 4  
Review and practice for the Final Exam |
| **June 5** | Final Exam |
### Chem 11 Spring 2018 (Sections 1389 and 1390) Lab Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 12</td>
<td>Lab check-in, Using Excel for Graphical Analysis (take-home; due 2/26)</td>
</tr>
<tr>
<td>Feb 19</td>
<td>No Lab (President’s Day)</td>
</tr>
<tr>
<td>Feb 26</td>
<td>The Densities of Solutions and Solids</td>
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<tr>
<td>Mar 2</td>
<td>No lab (Departmental flex day)</td>
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<tr>
<td>Mar 5</td>
<td>Inorganic Nomenclature</td>
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<tr>
<td>Mar 12</td>
<td>Paper Chromatography</td>
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<tr>
<td>Mar 19</td>
<td>Gravimetric Analysis</td>
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<tr>
<td>Mar 26</td>
<td>Evaluating the Cost-Effectiveness of Antacids</td>
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<tr>
<td>Apr 2</td>
<td>Types of Chemical Reactions</td>
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<td>Apr 9</td>
<td>Spring Break</td>
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<tr>
<td>Apr 16</td>
<td>The Molecular Weight of Carbon Dioxide</td>
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<tr>
<td>Apr 23</td>
<td>Calorimetry and Hess’s Law</td>
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<tr>
<td>Apr 30</td>
<td>Using Periodic Properties to Identify Group 2A Cations and Group 7A Anions</td>
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<tr>
<td>May 7</td>
<td>Atomic Emission Spectra</td>
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<tr>
<td>May 14</td>
<td>VSEPR Theory and Shapes of Molecules</td>
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<tr>
<td>May 21</td>
<td>Introduction to the Structures and Isomerism of Simple Organic Molecules; Lab check-out</td>
</tr>
<tr>
<td>May 28</td>
<td>Memorial day (school closed)</td>
</tr>
<tr>
<td>Jun 1</td>
<td>Review and practice for the final exam</td>
</tr>
<tr>
<td>Jun 4</td>
<td>Review and practice for the final exam</td>
</tr>
</tbody>
</table>