1. Instructor and Course Information:

   Professor: Joshua Perry, M.S.
   Lecture: T – 6:30 pm – 9:20 pm
   Laboratory: Th – 6:30 pm – 9:20 pm
   Office Hours: by appointment only (scheduled by email)
   Email: joshua.perry77835@navarrocollege.edu

2. Catalog Description of Course:

   Lecture: Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurement, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry.

   Laboratory: Basic laboratory experiments supporting theoretical principles presented in CHEM 1411; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports.

   Prerequisite: Math 1314 (College Algebra) or equivalent preparation. High school chemistry or CHEM 1405 (Introductory Chemistry) is strongly recommended.

3. Course Introduction and Rational: Chemistry is the study of matter and the transformations it undergoes. Chemistry is often referred to as “The Central Science” because its scope encompasses other disciplines. An understanding of chemistry is essential for the study of virtually all other physical sciences. Students attending CHEM 1411 will be presented with the fundamental principles of chemistry.

4. Instructional Materials:

   Lecture: Students will need the following items for lecture.

   Calculator: Students will need a non-programmable scientific calculator for use while taking exams and quizzes. No graphing calculators will be permitted for use during examination. I suggest buying a TI-30X IIS calculator. In addition, a student will not be allowed to use cell phones, electronic calculators, PDA’s or watches during an exam.

   Textbook: Chang, R., & Goldsby, K. (2016). Chemistry (12th ed.). New York, NY: McGraw Hill Education. ISBN: 9780078021510. If purchasing this from the Navarro College bookstores, it will contain access into the McGraw Hill Connect learning needed to access the course homework; otherwise, the student will need to purchase access.

This is a suggested guide to help the student with the course material. It is not required but may be useful in breaking down the course material to a more comprehensible level.

Laboratory: Students will need the following items for laboratory.


Safety Goggles: Students will provide their own safety goggles for the laboratory and must be ANSI Z87.1 compliant.

Laboratory Notebook: Composition notebook to record laboratory data and observations.

5. Student Learning Outcomes (SLO’s): The following student learning outcomes will be assessed at the end of the semester using a departmental standardized exam administered through Blackboard the last week of the course.

The SLO’s for the laboratory portion of the course will be assessed using a written report that will be submitted for grading using a rubric and by evaluation of the student’s laboratory technique. The grading rubric can be found in Blackboard.

Upon successful completion of the lecture portion of the course, students will:

- Define the fundamental properties of matter.
- Classify matter, compounds, and chemical reactions.
- Determine the basic nuclear and electronic structure of atoms.
- Identify trends in chemical and physical properties of the elements using the Periodic Table.
- Describe the bonding in and the shape of simple molecules and ions.
- Solve stoichiometric problems.
- Write chemical formulas.
- Write and balance chemical equations.
- Use the rules of nomenclature to name chemical compounds.
- Define the types and characteristics of chemical reactions.
- Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
- Determine the role of energy in physical changes and chemical reactions.
- Convert units of measurement and demonstrate dimensional analysis skills.

Upon successful completion of the laboratory portion of the course, students will:

- Use basic apparatus and apply experimental methodologies used in chemistry laboratory.
- Demonstrate safe and proper handling of laboratory equipment and chemicals.
- Conduct basic laboratory experiments with proper laboratory techniques.
• Make careful and accurate experimental observations.
• Relate physical observations and measurements to theoretical principles.
• Interpret laboratory results and experimental data, and reach logical conclusions.
• Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
• Design fundamental experiments involving principles of chemistry.
• Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

6. Core Objectives: Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning. This course will focus on describing, explaining, and predicting natural phenomena using the scientific method and will involve the understanding of interactions among natural phenomena and the implication of scientific principles of the physical world and on human experiences. Students will demonstrate their competence in the core objectives by completing a signature assignment in this course.

• Critical Thinking Skills: creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. {Assessed via laboratory experiments wherein students interpret experiment and experimental results.}

• Communication Skills: effective development, interpretation and expression of ideas through written, oral and visual communication. {Assessed via laboratory experiment wherein students work in pairs and must divide the workload to complete the experiment.}

• Empirical and Quantitative Skills: manipulation and analysis of numerical data or observable facts resulting in informed conclusions. {Assessed via laboratory experiments wherein students must observe phenomena and properly interpret the meaning of the results numerically.}

• Teamwork Skills: ability to consider different points of view and to work effectively with others to support a shared purpose or goal. {Assessed via laboratory experiment wherein students work with a partner to complete the experiment.}

7. Method of Instruction: This course is taught using lecture and hands-on laboratory instruction. Homework for this course, used to measure student progress, is administered through McGraw Hill Connect learning platform. Students will need access to this by the second-class meeting. The homework assignments are loaded into Blackboard which links directly to McGraw Hill Connect. Blackboard is an integrated component of both the lecture and laboratory components of the course.

8. Method of Evaluation: The following methods will be used to evaluate students in General Chemistry:
• **Homework:** There will be 10 homework assignments (top 9 of 10 considered in the course grade). The homework is to reinforce the material taught in class and is completed through the McGraw Hill Connect learning platform accessed through Blackboard. For each homework assignment, the student will be given three (3) attempts at the assignment with the highest attempts grade being considered for the assignment grade. The system does not allow for late submissions: the student’s grade at 11:59 pm on the due date will be the grade recorded for the assignment. Grades are rounded to the nearest whole number for homework assignments.

• **Exams:** There will be 4 lecture exams. Exam material will strictly be from the lecture material, homework assignments, and outside reading assignments. Each exam is composed of 4 components: 1.) Multiple Choice Questions, 2.) Vocabulary, 3.) Nomenclature, and 4.) Short Answer and/or Conceptual Questions. Each exam is valued at 300 points with a raw score of 150 being the equivalent of 60%. A full raw score conversion chart is located in Blackboard.

• **SLO Lecture Exam:** Mastery of Lecture Student Learning Outcomes (SLO) will be via an assessment test given in Blackboard the last week in the semester. The exam will open seven (7) days prior to the final exam at 12:00 am and close out the night of the final exam at 6:30 pm. For summer courses, the exam will open up Sunday at 12:00 am the week of the final exam and close out the last day of class at 5:00 pm. Students will have two attempts to complete the exam with the higher of the 2 grades being considered for the course grade. The exam must be completed in one sitting; a student cannot begin and come back later to resume where they left. There will be a strictly enforced time limit of 3 hours per attempt.

• **Final Exam:** A comprehensive final exam will be given at the culmination of the course in accordance to Navarro College policy and schedule. The final exam will be comprehensive of all material taught in the lecture portion of the course.

• **Laboratory Assignments:** Students will complete an assignment for each lab. There are two types of assignments: 1.) Laboratory Notebook Entries and 2.) Written Reports. Laboratory assignments are due as noted in the course outline at the end of the syllabus. These assignments are completed in the lab notebook and submitted periodically for grading. Assignments not completed by the due dates as noted will receive a grade of zero (0); no late submissions will be accepted.

• **Laboratory Notebook Entries:** Each student will be required to keep a laboratory notebook up to date and accurate. Each entry will be composed of 8 sections: 1.) Purpose, 2.) Materials, 3.) Procedure, 4.) Data, 5.) Calculations, 6.) Conclusions, 7.) Advanced Study Assignment, and 8.) Notes / Pre-Lab material. Any submission of the laboratory notebook that is incomplete (missing a section) for an entry will receive an automatic grade of 60.

• **Written Reports:** A student will be required to complete two (2) formal written reports over the course of the semester. Information about how to compose these reports is loaded into BlackBoard.
9. **Grading Criteria:** The following grading scheme will be used in this course:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentages Option A</th>
<th>Percentages Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (9/10)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Lecture Exams (4)</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>SLO Exam (1)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Final Exam (1)</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Laboratory Assignments (9/11)</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
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</tbody>
</table>

The grade cut-offs will be as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points Needed</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-89.9</td>
</tr>
<tr>
<td>C</td>
<td>65-79.9</td>
</tr>
<tr>
<td>D</td>
<td>50-64.9</td>
</tr>
<tr>
<td>F</td>
<td>0-49.9</td>
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</tbody>
</table>

Most students score higher on the lecture exams than on the final exam. In this case Option A benefits these students more, and the final exam is weighted lower than the lecture exams at 25%. Some students perform poorly on the midterm exams, but show improvement on the final exam in which case these students benefit from Option B where the final is weighted higher than the lecture exams at 35%.

The instructor reserves the right to lower the cutoff scores. Grades will not be rounded when calculating the final course grade. An “A” is exactly 90 or more points; 89.9 points will not be rounded to 90 points. If you happen to miss one (1) midterm exam because of an **unavoidable absence**, you must provide the instructor with official documentation that justifies such absence. **Notification must be sent via email to the instructor prior to the missed exam or, in the case of emergency, within 24 hours of the missed exam.** If you absence is deemed excused by the instructor, your grade will be calculated using **Option B**. An unexcused absence or an undocumented absence will result in the student receiving a grade of zero (0) on the exam and the students grade will **only** be calculated using **Option A**.

Any student caught violating the course Academic Dishonesty policy while taking an exam will receive an **automatic grade of zero (0)** for the exam, their grade will only be calculated using **Option A**, and the student will **not be allowed** to drop the course.

This course is **not graded on a curve**! The student’s grade in the course depends solely on how the student performs in the class, not on how the other students perform in the class.

10. **Attendance/Withdrawal Policy:** Regular and punctual class attendance is expected at Navarro College since it is assumed that students are enrolled for the serious purpose of furthering their education. Excessive absenteeism is defined as being absent for an equivalent of two weeks of instruction in a sixteen-week semester and may result in failure or being dropped from the course.
Veteran’s benefit recipients must be dropped from a course for benefit purposes within three (3) weeks after their last date of attendance. The VA benefit recipient needs to be aware that the VA may require repayment of all benefits received since the beginning of the semester for any course in which a “W” grade is received.

Although the instructor MAY withdraw a student from the class for excessive absences (insufficient participation), the RESPONSIBILITY for doing so belongs to the student! If a student is unable to complete the course, they should withdraw from it formally in the office of the registrar if they wish to avoid receiving a failing grade. College transcripts are a lifelong attachment!

- Failure to withdraw may result in the student’s name remaining on the class roll and receiving an “F” at the end of the semester.

- Deadlines for withdrawing from the course and their associated consequences to a student’s college transcript is recorded in the College Catalog.

- If the student is experience difficulty in this course or in meeting the class schedule, contact the instructor immediately to discuss their options.

- All drop slips must be signed by the instructor unless the student is completely withdrawing from Navarro College.

- Students must check out of the chemistry laboratory before dropping the course or withdrawing from Navarro College.

**Special notes:**

- If a student is receiving financial aid grants or loans, they must be in attendance in all classes. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in student enrollment level and/or failing grades may require you to repay financial aid funds.

- According to current Texas law, dropping a course may have serious academic consequences as well. Under most circumstances, a maximum of 6 courses may be dropped throughout the entire undergraduate degree program. Before a student decides to withdraw from this or any other course, make sure you understand the consequences. For more information see the Office of the Registrar.

11. **QEP:** The focus of the Navarro College QEP is to increase student completion in developmental and credit-bearing mathematics courses necessary to meet degree requirements. This initiative is designed to support student learning in mathematics and assist students in meeting their educational goals. - Together Everyone Achieves Math Mastery - **TEA(M)**².
12. Classroom Policies:

- **Electronic Devices in Classrooms**: Navarro College believes that the dynamics occurring in the classroom should primarily enhance the instruction process. The classroom is a learning laboratory, which must be free from interruption or interference. As a result, all electronic devices capable of generating noise such as cellular phones, pagers, palm pilots, beepers, watches, etc., are considered a distraction to the learning process and will be turned off prior to entering the classroom. Such devices will also be kept out of sight and not accessed during the class period.

  The student will not interact with these devices at any time during classroom instruction. Any student who anticipates receiving a message during classroom instruction or expects to be contacted in class by an outside source must coordinate with the Department or Division Secretary. Such message will be delivered to the appropriate instructor who will arrange a mutually satisfactory response to the situation.

  The instructor will warn a student who fails to comply with this policy one time. The student, upon the warning by the instructor, will take immediate corrective action. In the event the student fails to comply with the instructor’s request, the student will be dismissed from class and at the instructor’s discretion, may be counted absent or have points deducted for work missed, if appropriate. A student who violates this policy a second time will be dismissed from class, counted absent and have points deducted for work missed, and, if appropriate, referred to the Assistant Dean of the Division.

  A student who has an unauthorized electronic device activated during an examination period will not be permitted to continue the examination, will be asked to leave the classroom and will be denied the opportunity to complete or re-take the examination. Due to the circumstance, the instructor may question the validity of any portion of the examination-completed prior to the violation and may elect not to grade the examination. In such a situation, the student will not receive credit for the examination and will not be permitted to make up the missed examination.

- **Food and Beverages in Classrooms**: Navarro College is proud of the appearance of the campus and facilities. In order to assist in keeping facilities clean, no food of any type is allowed in any classroom, laboratory, the library, planetarium, art gallery, or museum. Food is defined as any edible food EXCEPT gum and cough drops. If you must carry food with you to be consumed elsewhere, the food must be in a backpack or a closed bag and out of view.

  Beverages are allowed in all areas, classrooms included, except the planetarium, art gallery, museum, computer laboratories and other specialized laboratories containing sensitive equipment. Students must exercise extreme care in bringing beverages into campus facilities as spills might damage carpet and other furnishings. All students are expected to properly dispose of all trash, drink containers, etc. brought into College facilities.

- **Disruptive Classroom Behavior Policy**: Navarro College seeks to promote a teaching and learning environment free from material and substantial classroom disruptions. Faculty
members have the authority and responsibility to effectively manage their classroom environments. Instructors may determine the time and manner for student questions and expression of points of view in the instructional setting. Accordingly, instructors should establish, communicate, and enforce reasonable rules of classroom behavior and decorum via the syllabus and classroom discussion. This policy is not intended to discourage appropriate classroom expression, discussion, or disagreement, but to promote respectful interactions.

Disruptive behavior is prohibited. "Disruptive behavior" means conduct that materially or substantially interferes with or obstructs the teaching or learning process in the context of the classroom or educational setting. Disruptive behavior includes conduct that distracts or intimidates others in a manner that interferes with instructional activities, fails to adhere to an instructor’s appropriate classroom rules or instructions, or interferes with the normal operation of the College.

- **Tobacco Free Campuses:** The use of any tobacco products or other related devices (e.g., cigarettes, pipes, cigars, electronic cigarettes, vapor devices) is prohibited in college buildings and on college grounds, including parking areas and structures, sidewalks, walkways, and college-owned buildings.

- **Academic Honesty:** In accordance with the College policy on academic honesty, you are expected to do your own work and to refrain from copying, in part or in whole, other people's work. This applies to lab reports. Looking at someone else’s paper during a quiz, test, or final exam is cheating. It is your responsibility to prevent others from looking at your quizzes/tests... keep your answers covered. Consequences of cheating may include: a grade of zero for that assignment, a grade of “F” for the course, dismissal from the course before the end of the semester, and/or referral for further disciplinary action.

13. **Additional Course Requirements:** Each lab period will begin with a safety brief. To treat all students fairly and ensure the experiments end within the timeframe specified, all students must be in the lab on time to attend the safety brief. Failure to be present during the safety brief may result in a student not being permitted to perform the experiment and a score of zero for the experiment will result.

When attending chemistry labs students must wear proper personal protective equipment: footwear that covers the entire foot; pants; and a shirt with sleeves. Attire must cover all parts of the body except the head, neck, and hands. Goggles must be worn when experiments are being conducted.

If a student is not wearing or not properly wearing goggles during the lab the instructor may give the student a warning. If the student subsequently fails to properly wear goggles during a lab points may be removed from the lab notebook score and/or the lab report score. The student may be required to leave the lab. Students failing to work safely and productively will be asked by the instructor to leave the lab.

Students will be assigned a chemistry lab drawer stocked with equipment and issued a key to the drawer. On or before the lab checkout day the drawer’s equipment will be inspected. The following charges will apply:
• Key not returned in good shape: $10.00 charge
• No checkout from lab: a “hold” will be placed on academic records
• Posting of grades will be withheld until the above fees are settled.

14. EEPC Statement: Navarro College shall comply with existing federal and state laws and regulations, including the Civil Rights Act of 1964 (P. L. 88-352) and Executive Order 11246 (Revised Order #4), where applicable, with respect to the availability of student loans, grants, scholarships, and job opportunities, with respect to the employment and promotion of teaching and non-teaching personnel, with respect to the student and faculty activities conducted on premises owned or occupied by the College. Navarro College shall not discriminate either in favor of or against any person on account of race, color, religion, creed, sex, age, national origin, ancestry, handicap, marital status or veteran status.

15. Services for Students:

• Students with Disabilities: Navarro College is committed to providing all students equal access to learning opportunities. The Disability Services Office (DSO) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations. Students who have, or think they may have, a disability (e.g. mental health, attentional, learning, vision, hearing, physical, or systemic) are invited to contact the DSO at 903-875-7377 or the appropriate Navarro College Disability Services Representative on your campus to arrange a confidential discussion. Additional information is available at the DSO website: http://www.navarrocollege.edu/support-services/disability-services/

• If you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. Please refer to the first page of the syllabus for my office location, hours, and contact information.

• Tutorial services: Tutoring services are available for a variety of course subjects at Navarro College. Contact the counseling department on your campus for information if you are having difficulty in a course.

• Special populations students: Navarro College provides, through the Carl Perkins Career Center, a variety of services for students who are single parents, displaced homemakers, persons with disabilities, students majoring in nontraditional occupations, and limited English-speaking students. Students falling into one or more of these categories should contact the Carl Perkins Career Center, located on the second floor of the One-Stop Center (Gooch Building) on the Corsicana campus, for details concerning these services. Please note that the center is funded through a federal grant and the level of service depends on funding available. Students must meet specific requirements as defined by the federal government.

16. Subject to Change: The course syllabus above and/or the Course Outline below may be changed as the term progresses at the discretion of the instructor.
17. **Course Outline**: The following course outline is a tentative plan of when assignments will be due throughout the course and when labs will be performed.

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<tr>
<th>Week</th>
<th>Tuesday</th>
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<tbody>
<tr>
<td>1</td>
<td>Lecture 01</td>
<td>Lecture 02</td>
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<td>Lecture 10</td>
<td>Exp. 07</td>
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<tr>
<td>2</td>
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<td>Lab Safety</td>
<td>10</td>
<td>Lecture 11</td>
<td>Exp. 08</td>
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<td>Exp. 02</td>
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<tr>
<td>3</td>
<td>Lecture 04</td>
<td>Exp. 02</td>
<td>11</td>
<td>Exam 03 (Lect. 08-10)</td>
<td>No Class (11/10/16)</td>
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<td>4</td>
<td>Lecture 05</td>
<td>Exam 01 (Lect. 01-04)</td>
<td>12</td>
<td>Lecture 12</td>
<td>Exp. 09</td>
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<td>5</td>
<td>Lecture 06</td>
<td>Exp. 03 and Exp. 04</td>
<td>13</td>
<td>Lecture 13</td>
<td>No Class (11/24/16)</td>
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<td>6</td>
<td>Lecture 07</td>
<td>Exp. 04 (Cont.) and Exp. 05</td>
<td>14</td>
<td>Lecture 14</td>
<td>Lecture 15</td>
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<td>7</td>
<td>Lecture 08</td>
<td>Exam 02 (Lect. 05-07)</td>
<td>15</td>
<td>Exp. 11</td>
<td>Exam 04 (Lect. 11-15)</td>
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<td>8</td>
<td>Lecture 09</td>
<td>Exp. 06</td>
<td>16</td>
<td>Review</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

**Homework (All homework is due by 11:59 pm):**

- **Chapter 01** – Due Sept. 18, 2016
- **Chapter 02** – Due Sept. 18, 2016
- **Chapter 03** – Due Oct. 09, 2016
- **Chapter 04** – Due Oct. 09, 2016
- **Chapter 05** – Due Nov. 06, 2016
- **Chapter 06** – Due Nov. 06, 2016
- **Chapter 07** – Due Dec. 04, 2016
- **Chapter 08** – Due Dec. 04, 2016
- **Chapter 09** – Due Dec. 11, 2016
- **Chapter 10** – Due Dec. 11, 2016

**Exams:**

- **Exam 01** – Due Sept. 22, 2016
- **Exam 02** – Due Oct. 13, 2016
- **Exam 03** – Due Nov. 06, 2016
- **Exam 04** – Dec. 08, 2016
- **Final Exam** – Dec. 15, 2016

**Experiments (Submitted at the end of each lab as noted):**

- **Exp 01**: Basic Data Collection and Reporting – Due Sept. 08, 2016
- **Exp 02**: The Density of Liquids and Solids –
  - Written Report – Due Sept. 15, 2016
  - Due Sept. 27, 2016
- **Exp 03**: M&M Chromatography – Due Sept. 29, 2016
- **Exp 04**: Determination of a Chemical Formula – Due Oct. 06, 2016
- **Exp 05**: Molar Mass of an Unknown Acid – Due Oct. 06, 2016
- **Exp 06**: Analysis of an Unknown Chloride – Due Oct. 20, 2016
- **Exp 08**: Heat Effects and Calorimetry – Due Nov. 03, 2016
- **Exp 09**: Determination of the Hardness of Water –
  - Written Report – Due Nov. 17, 2016
  - Due Nov. 29, 2016
- **Exp 10**: The Atomic Spectrum of Hydrogen – Due Dec. 01, 2016
- **Exp 11**: The Geometric Structures of Molecules – Due Dec. 06, 2016