*GRAYSON COLLEGE*
*Course Syllabus*

**CHEM 1311 General Chemistry 1 and CHEM 1111 General Chemistry 1 Lab**
*Spring 2017*

**Professor Contact Information**
Instructor: Dr. Jane Johnson-Carr
Email: carrj@grayson.edu
Office Location: S205A
Office Hours: MWR 11:00-1:00; T 2:00-3:00, F 8:00-12:00
Office Phone (903) 463-8668
Science Office Phones:

**Course Pre-requisites, Co-requisites, and/or Other Restrictions**
Although students must register for a separate course number for lab and lecture, the two "courses" are in fact the same course and are separated for scheduling and reporting reasons. Your final grade is derived from the combination of your lecture and laboratory grades. Together the lecture and laboratory satisfy the state learning objectives (CS1, CT2, CT3, EQS2, and TW1) and therefore must be taken concurrently.

Concurrent enrollment in CHEM 1111 lab is required. Successful completion with a grade of C or better in MATH 1314 or equivalent course required. High school chemistry strongly recommended. College readiness in reading and math required.

**Course Description – from college catalog**
Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, 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. Basic laboratory experiments supporting theoretical principles presented in lecture; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports.

**Student Learning Outcomes**

Upon successful completion of this course, students will:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.
6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills.

L1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
L2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
L3. Conduct basic laboratory experiments with proper laboratory techniques.
L4. Make careful and accurate experimental observations.
L5. Relate physical observations and measurements to theoretical principles.
L6. Interpret laboratory results and experimental data, and reach logical conclusions.
L7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
L8. Design fundamental experiments involving principles of chemistry.
L9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

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**Required Textbooks (ISBN # included) and Materials**

*Chemistry: Atoms First* by Julia Burge and Jason Overby. Combo: Loose Leaf book with Connect Access Card
9781259117770 / 1259117774 Students **MUST** obtain Connect Access.

Canvas Access to Lab Report Sheets (printed from Canvas, no separate laboratory manual)

Scientific Calculator

Safety Goggles

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**Required Assignments & Academic Calendar**

**In case of inclement weather, emergency closings, or other unforeseen disruptions to scheduled classes, student must log onto their Canvas accounts for directions on where or how to continue their coursework.**

| | **Week Starting** | **M/T** | **W/Th** | **Homework Problems From Burdge and Overby** | **Connect Quizzes to Complete** | **Laboratory Experiment** |
|---|---|---|---|---|---|---|
| 1 | Jan 16 | Chap 1 | Chap 1 | Chap 1: 4, 8, 9, 14, 16, 17, 24, 27, 41, 45, 47, 49, 51, 53, 55, 68, 69, 91 | Q1 | #0 Safety and #1 Data Analysis |
| 2 | Jan 23 | Chap 2 | Chap 2 | Chap 2: 6, 17, 19, 21, 27, 34, 35, 37, 39, 45, 55, 57, 59, 61, 65, 77, 78 | Q2 | #2 Density of Liquids and Solids |
| 3 | Jan 30 | Chap 3 | Chap 3 | Chap 3: 11, 15, 41, 72, 74, 75, 77, 81, 83, 89, 95, 99, 105, 106, 117, 119, 137, 143 | Q3 | #3 Separating a Heterogeneous Mixture **(TW1)** |
| 4 | Feb 6 | Review | **Exam 1** | **All Unit 1 Homework Due at Exam Time** | | #4 The Alkaline Earths and the Halogens (**EQS)** |
| 5 | Feb 13 | Chap 4 | Chap 5.1-5.7 | Chap 4: 17, 19, 44, 45, 49, 51, 55, 65, 69, 71, 73, 75, 77, 85, 88, 89, 93, 121 | Q4-1 Q4-2 | #5 Graphing Periodic Trends **(CS1)** |
| 6 | Feb 20 | 5.8-5.10 | 6.1-6.4 | Chap 5: 23, 27, 28, 29, 33, 35, 41, 43, 47, 57, 75, 77 | Q5-1 Q5-2 | #6 Determination of a Chemical Formula |
| 7 | Feb 27 | 6.5-6.6 | 7.1-7.6 | Chap 6: 23, 25, 29, 30, 31, 35, 37, 41, 81 Chap 7: 7, 9, 11, 62, 63, 66, 67 | Q6 Q7-1 Q7-2 | #7 Geometrical Structure of Molecules |
| 8 | Mar 6 | Review | **Exam 2** | **All Unit 2 Homework Due at Exam Time** | | #8 Reactions in Solution |
| | Mar 13 | SPRING BREAK | | | | |
| 9 | Mar 20 | 8.1 | 8.3-8.4 | Chap 8: 9, 11, 16, 27, 29, 32, 34, 35, 38, 39, 46, 49, 51, 53, 57, 65, 72, 93 | Q8-1 Q8-2 | #9 Reaction Stoichiometry **(CT2, CT3)** |
| 10 | Mar 27 | 9.2, | 9.5-9.6 | Chap 9: 99, 100, 101, 103, 113, 114, 119, 123 | Q9 | #10 Standardization of NaOH and Determination of the MM of an Acid |
| 11 | Apr 3 | Review | **Exam 3** | **All Unit 3 Homework Due at Exam Time** | | 11 Recycling Aluminum to Alum |
| 12 | Apr 10 | 10.1-10.4 | 10.5-10.7 | Chap 10: 27, 31, 33, 41, 45, 46, 47, 48, 57, 59, 63, 77, 123 | Q10 | #12 Determination of Calcium by Gravimetric Analysis |
| 13 | Apr 17 | 11.1-11.7 | | Chap 11: 23, 31, 33, 43, 45, 52, 53, 57, 59, 70, 71a, 81,94, 107, | Q11-1 Q11-2 | #13 Heat Effects and Calorimetry |
| 14 | Apr 24 | Review | **Exam 4** | **All Unit 4 Homework Due at Exam Time** | | #14 Redox Titration |
| 14 | May 1 | 9.3-9.4 | | Chap 9: 11, 17, 21, 22, 23, 43, 47, 67, 91, 107, 111 | Q9.4 | **Laboratory Exam** |
| 15 | May 8 | **FINAL EXAM:** M/W 9:30-11:20 Monday May 8 T/R 9:30-11:20 Tuesday May 9 | | | | |

**Methods of Evaluation**

**Lecture Exams**
Four (4) exams will be administered throughout the semester (including final) during the lecture portion of the course. All exams will be cumulative throughout the course and will consist of multiple choice and short answer questions. If the final exam is higher than the lowest previous exam grade, it may be used to replace that lowest exam grade.

One (1) exam will be given at the end of the laboratory portion of the course. This exam will consist of questions primarily related to laboratory procedures and calculations and may not be replaced by the lecture final.

**There are no makeup exams!** If you know you will be unable to take a test during the assigned time, contact me **PRIOR** to the test to make arrangements to take the test at another time. Decisions concerning alternative testing times are strictly the discretion of the professor.

Students must bring a scantron and scientific calculator to every exam. Cell phones may not be used as calculators. If a graphing calculator is used, the memory must be cleared prior to the exam.

Exam grades will be posted in Canvas. Students may view their exams after grading, but the instructor will keep all exams and scantrons.

Success in chemistry is strongly linked to completing homework and reading assignments. Homework problems, in-class work sets and Connect quiz grades will be factored into an overall homework grade, which will be equal to a unit exam grade in value. Connect quizzes must be completed weekly; typically, by Sunday at 11:59 pm. Homework assignments will be collected at each unit exam. Extensions on assignments are at the discretion of the instructor.

**Laboratory reports**
Weekly lab report grades will be averaged together and will be equivalent to 2 exam grades

The points allotted to each laboratory report are as follows:

| | |
|---|---|
| Pre-Lab Assignment | 10 pts |
| Actual Lab work | 60 pts. |
| Results (Precision and Accuracy) | Up to30 pts |

Report Sheets for every experiment are posted in Canvas. The student is responsible for printing the correct report sheet **BEFORE** coming to lab. A 10 point penalty will be issued for not using the correct lab sheet

Pre-Lab Assignments are posted on each lab sheet in Canvas and must be completed **BEFORE** the beginning of the laboratory period.

Precision and Accuracy grades will be applied to experiments with quantifiable results.

Laboratory reports are to be handed in at the end of the scheduled lab period, unless specified otherwise by the instructor. EACH STUDENT MUST TURN IN HIS/HER OWN INDIVIDUAL REPORT. A penalty of at 10 points per week will be assessed to lab reports turned in late. Lab reports will be returned to the student in a timely manner.

A student must earn an average grade of at least 50% on lab reports to receive a passing grade for CHEM 1311/1111. If a student's lab report average is below 50 %, they will receive an F grade for both courses, regardless of the actual course grade calculated below.

**To determine student's final grade:**

If the final exam grade is greater than any lecture exam grade

1. Add up points earned on 3 highest scoring lecture exams
2. Add the final exam grade x 2
3. Add the points earned on the laboratory final
4. Add the average points earned on weekly lab reports x 2
5. Add the % of points earned on homework and quizzes (points will be posted in Canvas)
6. See chart below

If the final exam grade is the lowest exam grade

1. Add up points earned on all 4 lecture exams
2. Add the final exam grade
3. Add the points earned on the laboratory final
4. Add the average points earned on weekly lab reports x 2
5. Add the % of points earned on homework and quizzes (posted in Canvas)
6. See chart below

**Final Grade**

**Grades are based on total points earned. Percentages are for comparison purposes only**

| percent | Points earned | Letter grade |
|---|---|---|
| **90-100%** | **830-900** | **A** |
| **80-89%** | **720-829** | **B** |
| **70-79%** | **630-719** | **C** |
| **60-69%** | **540-629** | **D** |
| **<60%** | **<539 pts or < 50 % in lab** | **F** |

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**Methods of Instruction**
Lecture: Face-to-Face course, 75 minutes/DAY (Mon/Wed or Tues/Thurs) on campus

Lab: Face-to-Face course involving hands-on experimentation 3 hrs/week on campus,
Students will work both individually and in small groups to complete laboratory experiments

Testing conducted on campus in class

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**Course & Instructor Policies**

Students, who drop the Chemistry 1311 lecture course, must also withdraw from the Chemistry 1111 lab course.

**Laboratory Safety Policies:**

Chemical splash goggles must be worn in the chemistry laboratory anytime chemicals, glassware or heat are used. **NO EXCEPTIONS**. Safety "glasses" are not acceptable. This includes during lab cleanup or when any group, regardless of location, is still conducting an experiment. Students will be given only 1 warning during a laboratory period. If the student is caught without goggles later in the period, they will be dismissed from the lab and receive a grade of 0 for the experiment.

Students are not allowed to wear flip-flops, sandals or open toed shoes in the laboratory. **Shoes must cover the top of the foot**. Students without proper footwear will be sent home to change. Students will not be given extra time to complete labs due to coming in inappropriate footwear.

It is strongly recommended that students wear long pants or long skirts and refrain from shorts and short skirts. Laboratory coats and aprons are permitted, but will not be provided.

Students with long hair are encouraged to pull their hair back or put it up. Loose hair can be a serious hazard.

Although "accidents" do happen in the laboratory, glassware breakage is generally preventable. If laboratory equipment is damaged or broken due to carelessness, the student will be charged up to 10 points on the daily lab report grade for each item broken or damaged.

In order to protect our local water supply, students are required to follow all chemical waste disposal guidelines given by the instructor. Failure to comply with proper waste disposal will result in a 10 point penalty for each infraction.

**Class Attendance**
Academic success is closely associated with regular classroom attendance and course participation. Any student missing more than 20% of the class meetings (more than 5 absences) or excessively tardy to lecture or lab (routinely more than 10 minutes late) will have their final class grade lowered by 1 letter grade. Any student missing more than 50 % of class meetings (14 or more absences) will receive an automatic F grade, regardless of actual earned grade.

**STUDENTS ARE REQUIRED TO ATTEND THE LABORATORY SESSION THEY ARE ENROLLED IN**. If a student must be unavoidably absent from lab, they must secure permission **IN ADVANCE** from the instructor to make up the lab at another time. Unexcused absences will receive a grade of 0 for the experiment. Decisions concerning alternative laboratory times and/or assignments are strictly the discretion of the instructor.

All successful students, whether on campus or online, are expected to be highly self-motivated.

All students are required to participate in courses regularly and are obliged to participate in class activities and complete and submit assignments following their professors' instructions. Students taking courses during compressed semester time frames such as mini-mester, summer sessions, and mid-semester should plan to spend significantly more time per week on the course. Responsibility for work missed because of illness or school business is placed upon the student. More than two (2) absences are considered to be excessive. In addition, students' eligibility to receive financial aid or live in a College dormitory can be affected by withdrawal from courses. When withdrawal occurs, any tuition refund would be made in accordance with state regulations.

**Student Conduct & Discipline**

All cell phones and other electronic devices must be turned off or to silent before entering the classroom. Texting during class means you are not paying attention and is unacceptable behavior. Cell phones may be used during class for legitimate educational purposes (accessing periodic tables or other chemistry apps)

Students may use laptop computers or tablets during class but are expected to be using them for chemistry classwork only. Students using laptops for other purposes will be asked to turn them off or leave the classroom.

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**Student Responsibility**

You have already made the decision to go to college; now the follow-up decisions on whether to commit to doing the work could very well determine whether you end up working at a good paying job in a field you enjoy or working at minimum wage for the rest of your life. Education involves a partnership that requires both students and instructors to do their parts. By entering into this partnership, you have a responsibility to show up for class, do the assignments and reading, be engaged and pay attention in class, follow directions, and put your best effort into it. You will get out of your experience here exactly what you put into it – nothing more and nothing less.

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**TITLE IX**

GC policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status. Furthermore, Title IX prohibits sex discrimination to include sexual misconduct: sexual violence (sexual assault, rape), sexual harassment and retaliation.

For more information on Title IX, please contact:

- Dr. Regina Organ, Title IX Coordinator (903-463-8714)
- Dr. Dava Washburn, Title IX Coordinator (903-463-8634)
- Dr. Kim Williams, Title IX Deputy Coordinator- South Campus (903) 415-2506
- Mr. Mike McBrayer, Title IX Deputy Coordinator (903) 463-8753
- Ms. Marilyn Power, Title IX Deputy Coordinator (903) 463-8625
- Website: http://www.grayson.edu/campus-life/campus-police/title-ix-policies.html
- GC Police Department: (903) 463-8777 Main Campus
  (903) 415-2501 South Campus
- GC Counseling Center: (903) 463-8730
- For Any On-campus Emergencies: 911

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**Grayson County College is not responsible for illness/injury that occurs during the normal course of classroom/lab/clinical experiences.**

**These descriptions and timelines are subject to change at the discretion of the Professor.**

**Grayson College campus-wide student policies may be found at the Current Student link on the Grayson Website**
http://grayson.edu/current-students/index.html