GRAYSON COLLEGE
Course Syllabus

CHEM 1312 General Chemistry 2 and CHEM 1112 General Chemistry 2 Lab
Spring 16 week term

Professor Contact Information
Instructor: Dr. Jane Johnson-Carr
Email:
Office Location:
Office Hours: by appointment
Office Phone
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 1112 lab is required. Prerequisite: CHEM 1411 or CHEM 1311 and CHEM 1111.

Course Description – from college catalog
A continuation of CHEM 1411, this second semester course sequence involves the general study of inorganic chemistry including fundamental concepts, thermodynamics, kinetics, chemical equilibrium, descriptive chemistry of the main group and transition metal elements, acids and bases, colligative properties, electrochemistry, and oxidation-reduction reactions. Organic chemistry is introduced. This second semester laboratory sequence is designed to provide an introductory level knowledge of the techniques and procedures employed in a first year chemistry laboratory course. Experiments dealing with inorganic synthesis, qualitative analyses, chemical equilibrium, kinetics, acids/bases/buffers, molecular structure, colligative properties of materials, and solubility product are utilized.

Student Learning Outcomes

Upon successful completion of this course, students will:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry

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.

Required Textbooks (ISBN # included) and Materials

Chemistry: Atoms First 2 edition by OpenStax
https://openstax.org/details/books/chemistry-atoms-first-2e

CHEM 101

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

Scientific Calculator

Safety Goggles

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.
C101 = CHEM101 Homework Assignment or Timed Quiz
PS = Practice Sheet found in Canvas Module
VQ = Video Quiz found in Canvas

	Week Starting	Lecture Content	Homework Problems	Quizzes	Laboratory Experiment
1		Chap 10	C101 10-IMF C101 10-Unit Cells	VQ #10 C101 Chap 10	Check-In, Safety #1 Statistical Analysis
2		Chap 11	C101 10-Phases C101 11-Solutions	VQ 11A	#2 Vapor Pressure and Enthalpy
3		Chap 11.4	C101 11-Colligative PS MM from Colligative Properties	VQ 11B C101 Chap 11	#3 Molar Mass by Freezing Point Depression
4		Chap 12	C101 Energy Calc PS Thermodynamics	**Exam 1,** VQ 12 C101 Chap 12	#4 Thermodynamics and Ksp
5		Chap 13	C101 Eq Expressions	VQ 13A	#5 LeChatlier's Principle
6		Chap 13.4	C101 Eq. Calcs PS Gas Equilibria	VQ 13B C101 Chap 13	#6 Determination of Keq
7		Chap 14	C101 Acids C101 Acid Calcs PS Acid Equilibria	VQ 14A, 14B, C101 Acids C101 Bases	#7 Ka of Bromothymol Blue
8		Chap 14.6, 14.7	C101 Buffers C101 Titrations PS Buffers	**Exam 2** VQ#14C C101 Buffers and Titrations	#8 Ksp by Titration
		SPRING BREAK			
9		Chap 15	C101 Ksp PS Salts PS Solubility	VQ 15 C101 Solubility	#9A Synthesis of a Coordination Complex
10		Chap 16	C101 Redox C101 Galvanic Cells	VQ 16A	#9 B Analysis of a Coordination Complex **(EQS)**
11		Chap 16.7	C101 Electrolysis PS Electrolysis	VQ 16B C101 EChem	#10 Electrochemistry **(CT2, CT3)**
12		Chap 17	C101Inital Rates PS Initial Rates	**Exam 3** VQ 17A C101 Kinetics	#11 Kinetics by Initial Rates: Iodination of Acetone **(TW)**
13		Chap 17.4, 17.6	C101 IRL C101 Mechanisms	VQ 17B, 17C C101 Collision Theory	#12 Integrated Rate Laws
14		Chap 20	C101 Nuclear Rxns PS Nuclear Half-life	C101 Chap 20 VQ 20	#13 Nuclear Decay
15		Chap 19	C101 Coordination Cplxs	**Exam 4** VQ 19	**LAB EXAM**
16		**Final Exam during Class Meeting Time**			

Methods of Evaluation

Lecture Exams
Five (5) exams will be administered throughout the semester relating to the lecture portion of the course. *The 4 Unit Exams will be taken in the testing center on the main campus*. *The student is responsible for arranging to take the exam during the testing window*. All exams will be cumulative throughout the course and will consist of multiple choice and short answer questions. The Final Exam is required and will be administered during class time during finals week. 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 and practice sets will be factored into an overall homework grade, which will be equal to a unit exam grade in value. CHEM101 and video quizzes must be completed weekly; typically, by Sunday at 11:59 pm and will also be equal to an exam grade. Extensions on assignments are at the discretion of the instructor. LATE WORK WILL GENERALLY BE ASSIGNED A 10 % PER DAY PENALTY. NEGATIVE GRADES ARE POSSIBLE.

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 1312/1112. If a student's lab report average is below 50 %, they will receive an F grade for the entire course, 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 percentage of points earned on homework and classwork (points will be posted in Canvas)
6. Add the percentage of points earned on quizzes (points will be posted in Canvas)
7. 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 percentage of points earned on homework and classwork (points will be posted in Canvas)
6. Add the percentage of points earned on quizzes (points will be posted in Canvas)
7. 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%	**900-1000**	**A**
80-89%	**800-899**	**B**
70-79%	**700-799**	**C**
60-69%	**600-699**	**D**
<60%	**<599 pts or < 50 % in lab**	**F**

Methods of Instruction
Lecture: On-line with video instruction and CHEM101 tutorials

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

Testing conducted on campus in Testing Center. Use link in Canvas to schedule testing appointments.

Course & Instructor Policies

Students, who drop the Chemistry 1312 lecture course, must also withdraw from the Chemistry 1112 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 3 unexcused absences) or excessively tardy (routinely more than 20 minutes late) will have their final class grade lowered by 1 letter grade. Any student missing more than 50 % of class meetings (7 unexcused 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 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.

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.

Plagiarism

Plagiarism is a form of scholastic dishonesty involving the theft of or fraudulent representation of someone else's ideas or words as the student's original work. Plagiarism can be intentional/deliberate or unintentional/accidental. Unintentional/Accidental plagiarism may include *minor* instances where an attempt to acknowledge the source exists but is incorrect or insufficient. Deliberate/Intentional plagiarism violates a student's academic integrity and exists in the following forms:

- Turning in someone else's work as the student's own (such as buying a paper and submitting it, exchanging papers or collaborating on a paper with someone else without permission, or paying someone else to write or translate a paper),
- Recycling in whole or in part previously submitted or published work or concurrently submitting the same written work where the expectation for current original work exists, including agreeing to write or sell one's own work to someone else,
- Quoting or copy/pasting phrases of three words or more from someone else without citation,
- Paraphrasing ideas without citation or paraphrasing incompletely, with or without correct citation, where the material too closely matches the wording or structure of the original,
- Submitting an assignment with a majority of quoted or paraphrased material from other sources, even if correctly cited, when original work from the student is expected,
- Copying images or media and inserting them into a presentation or video without citation,
- Using copyrighted soundtracks or video and inserting them into a presentation or video without citation,
- Giving incorrect or nonexistent source information or inventing source information,
- Performing a copyrighted piece of music in a public setting without permission,
- Composing music based heavily on someone else's musical composition.

Infractions may result in disciplinary options on behalf of the faculty member and/or dean.

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

COVID-19

Grayson College continues to monitor the evolving COVID-19 situation and align our college planning with guidance from the local and state health officials. Our primary goal is to protect the health and safety of our students, faculty, staff, and the Grayson community, while delivering quality education. We will continue to communicate as more information becomes available.

Safety requirements for students, faculty, staff, and the general public will be posted and kept current, so please stay tuned to your Viking email and the COVID 19 page on the Grayson College website for additional information or other changes that may be announced.

Grayson College COVID-19 Safety Protocol
The best way to prevent illness is to avoid being exposed to this virus. However, as a reminder, the Centers for Disease Control and Prevention (CDC) always recommends everyday preventive actions to help prevent the spread of respiratory diseases, including:

- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom; before eating; and after blowing your nose, coughing, or sneezing. If soap and water are not readily available, use an alcohol-based hand sanitizer with at least 60% alcohol.
- Always wash hands with soap and water if your hands are visibly dirty. For information about handwashing, see CDC's Handwashing website.
- Avoid touching your eyes, nose, and mouth.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.
- Avoid close contact with people who are sick.
- Stay home when you are sick.

Grayson College COVID-19 Instructional Guidelines
Grayson College continues to monitor information relating to the COVID-19 Pandemic. The College has taken steps to ensure that as many of our programs/courses can continue in the event that the College must re-institute partial and/or full campus closure to the public. Quality education will be moved to a remote delivery format, when feasible, which includes one or more of the following methods:

- Live Streaming instruction (synchronous)
- Recorded instruction (asynchronous)
- Online or web activities using the Canvas platform
- Video capture, both live and recorded sessions
- Use of open educational resources (OER) in place of traditional textbooks

Grayson College COVID-19 Lab Safety Protocol
In accordance with the Texas Department of Health and Human Services, Grayson College will follow these guidelines: Groups of 9 of less may be scheduled for small group labs, where hands-on skills are necessary to be practiced or demonstrated

Social distancing will be practiced to reduce the risk of transferring germs
Faculty and students will be screened prior to entering a lab or classroom, which will include:

- Taking each person's temperature
- Asking CDC-standard questions

All persons will wash hands with soap and water upon admittance Students and faculty will participate in sanitation and cleaning of equipment and workspace at the conclusion of each session
Students are encouraged to:

- Log in to Canvas and communicate with your faculty as needed.
- Study and complete assignments in a timely manner
- Ask questions along the way

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