

Course Department	CHEM	Course Number	121	Course Credit Hours	4
WNC Catalog Course Description	Provides fundamentals of chemistry including reaction stoichiometry, atomic structure, chemical bonding, molecular structure, states of matter and thermochemistry. Three hours lecture/three hours laboratory per week.		Course Transferability	This course is designed to apply toward a WNC degree and/or transfer to other schools within the Nevada System of Higher Education, depending on the degree chosen and other courses completed. It may transfer to colleges and universities outside Nevada. For information about how this course can transfer and apply to your program of study, please contact a counselor.	
Minimum Lecture Hours per Week (16 week Semester)	Three hours of Lecture		Minimum Lab Hours per Week (16 week Semester)	Three hours of Laboratory.	
Minimum Lecture Hours per Week (8 Week Semester)	Six hours of Lecture.		Minimum Lab Hours per Week (8 week Semester)	Six hours of Laboratory.	
Minimum Lecture Hours per Week (3 Week Semester)	16.25 hours of Lecture.		Minimum Lab Hours per Week (3 week Semester)	16.25 hours of Laboratory.	
Pre-Requisite or Co-Requisite Courses (if the latter is applicable)	MATH 126 or higher with a grade of C or better OR appropriate score on the WNC placement or equivalent test.				
Faculty Comment	<p>PERSPECTIVE: CHEM 100 (a different <u>non-major's</u> course) is a one semester overview of elementary CHEM and is about equivalent to one (1) year of high school CHEM.</p> <p>PERSPECTIVE: CHEM 121 is university-transfer and is 6-10 times as intense as CHEM 100!</p> <p>PERSPECTIVE: CHEM 121 covers the gamut of degree requirements: BCH; BIOL; CHEM; CHEM ENG; General Education; Genetics; NUTR; RWF; PHYS; PreDVM/Pre-DC/PreOD/Pre-R.Ph; Pre-MD/Pre-DO/Pre-DDS; Pre-NURS; Pre-PT.</p>				
Identify Any Risk Management Issues	Risk of minor physical injury (skin laceration) due to glass breakage; risk of minor physical injury (skin) due to the use of common mineral acids and bases; risk of serious physical injury if student fails to wear proper goggles (eyes) and lab coat (skin); risk of moderate injury if student fails to put hair up out of the way (skin); risk of moderate physical injury if student fails to wear proper foot wear (skin); risk of minor to severe physical injury due to fire/burn (Bunsen burners, pyrophoric compounds and skin).				
Lab Safety Supplies REQUIRED	<p>Purchased at the WNC Bookstore. ALL Students: Tyvek Lab Coat and UVEX Safety/Chemical Splash Goggles with Indirect Venting; Anatomy and Physiology Students: Nitrile Gloves (Best Price is at WalMart or An Auto Parts Store) – NO Deviations from These Items!</p>				

Course Topics	All students will have a basic (first semester of a two semester laboratory based course) knowledge of the principles of Chemical Reactions, Stoichiometry, Atomic Structure, Chemical Bonding, Molecular Structure, States of Matter, Aqueous Solutions, Acid-Base Chemistry, Redox Reactions, Thermochemistry; and Have practiced the laboratory methods needed to observe and measure the above.
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General Education Course Goals/Outcomes/Objectives	<p>Upon successful completion of CHEM 121, General Chemistry I, (defined as a 75% course score or better) learners will be able to (GESLO = General Education Student Learning Outcome; ISLO = Institutional Student Learning Outcome):</p> <p>Describe, identify and balance the six (6) general types of chemical, as well as college freshman level reduction oxidation, reactions (GESLO #1; ISLO #1);</p> <p>Illustrate and explain the chemistry and function of aqueous solutions of acids and bases (GESLO #1, #4; ISLO #1, #4, #7);</p> <p>Illustrate and explain the role thermochemistry plays in forming molecules in the solid, liquid and gaseous states (GESLO #1, #4; ISLO #1, #4, #7);</p> <p>Illustrate and explain the role the periodic table plays in chemistry (GESLO #1, #4, #8; ISLO #1, #4, #7);</p> <p>Draw conclusions with basic calculations of and from general chemistry laboratory experiences (GESLO #1, #4; ISLO #1, #4, #7).</p>
Course Broad-Based Student Learning Outcomes	<p>The student will be able to demonstrate, illustrate or diagram how chemical composition and molecular structure determine the physical properties of pure substances and mixtures through textual materials, lectures, practice problems, and laboratory work.</p> <p>The student will be able to demonstrate, illustrate and/or diagram the nature of the physical and chemical properties of matter, e.g. on the periodic table, elements are arranged in sequence by increasing atomic number and this arrangement is useful for predicting the properties of elements and compounds, through textual materials, lectures, practice problems, and laboratory work.</p> <p>The student will be able to illustrate, diagram or demonstrate the fundamental principles that explain chemical reactions through textual materials, lectures, practice problems, and laboratory work.</p> <p>The properly prepared student will be able to complete these activities at or above a minimum level of 75% on an appropriate assessment tool.</p>
Course Specific Student Learning Outcomes/Objectives/Goals	In the text of each lecture "chapter" on Dr. Carman's website, clearly identified.
Student Performance/Assessment Tool[s]	Daily Work Sheets, Laboratory Experiments and Exams as described below.
Minimum Studying Time Required (per day! 7 days a week!)	The general rule of thumb in higher academics/education for appropriate student studying time necessary for learning to occur in a college/university transfer course is 3 hours a week for every hour that a student is in lecture and/or lab. For a traditional science lab-based course, that means a minimum of 18 hours ... even better: 3 hours every day of the week. For an 8 week course, that goes up to 6 hours a day. For a three week summer course, you go to class and lab, study and sleep.

Course Linkage to Academic Degree Program[s]	<p>General Education Mission: CHEM 121 is a general education course that provides students who complete degrees and certificates with critical life skills that will benefit them in their personal and professional endeavors.</p> <p>General Education Student Learning Outcome[s]: See Above (General Education Course Goals/Outcomes/Objectives) Section</p> <p>Program Mission for AA/AS degree: CHEM 121 satisfies the A.A./A.S. degree mission by providing academic knowledge and skills for successful transfer students to meet higher educational goals.</p>
Lecture and Lab Experiment Source	<p>http://www.drcarman.info Dr. Carman uses no traditional textbooks or lab books: this saves the students money and keeps information more fluid and current.</p>
Free, Web-Based Textbook If You So Desire – NOT Required	Open Stax General Chemistry Text

Grading Scale

<p>96-100% = A 91-95% = A- 87-90% = B+ 83-86% = B 79-82% = B- 75-78% = C</p> <p>Above the minimum course score of 75% is a properly prepared student. 71-74% = D 74% or below for the course is an improperly prepared student. ≤ 70% = F</p> <p>cf also Section 3 of the Course Rules, lines 184-211, linked on Dr. Carman's Main Web Page (http://www.drcarman.info)</p>

Grade Assignment and Distribution to Required Work

Assignment	Comment(s) (ANY Quizzes or Exams are Cumulatively Comprehensive)	Dates/Locations	
"BIG" Exams			
Pre-Course Assessment	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper; students don't see the exam, again.	28 August 2017, 1730-1845, CED 331A and 331C	
Post-Course Assessment	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper; students don't see the exam, again.	Monday Lab Period for CHEM 121 1002 Students, 1915-2145, 11 December 2017 Final Exam Week, CED 331C Wednesday Lab Period for CHEM 121 1003 Students, 1915-2145, 13 December 2017 Final Exam Week, CED 331A	

Lab Practical Exam	Per Exam Linked Between Dr. Carman's Website and Canvas – Due per Canvas Directions	Practical Portion, Week 15, Regular Lab Period, 201 ASP CHEM 121 1002, 1900-2145, 4 December 2017 ; CHEM 121 1003, 1900-2145, 6 December 2017	
Lab Theoretical Exam	Per Canvas Announcement	Week 16 at Regular Lecture Time: CHEM 121 1002 Students, 11 December 2017, 17:30-18:45 - CED 331C ; CHEM 121 1003 Students, 13 December 2017, 17:30-18:45 p.m.- CED 331A	
NOT so "BIG" Exams (a.m. & p.m. times used); Dr. Carman Provides and Collects the Scratch Paper			
Exam/Quiz #1	Through Week 1 Reading and Worksheets and Canvas Worksheets	6 September 2017 5:30-6:45 p.m. – Exam/Quiz – CED 331A/C	
Exam/Quiz #2	Through Week 3 Reading and Worksheets and Canvas Worksheets	18 September 2017 5:30-6:45 p.m. – Exam/Quiz – CED 331A/C	
Exam/Quiz #3	Through Week 5 Reading and Worksheets and Canvas Worksheets	2 October 2017 5:30-6:45 p.m. – Exam/Quiz – CED 331A/C	
Exam/Quiz #4	Through Week 7 Reading and Worksheets and Canvas Worksheets	16 October 2017 5:30-6:45 p.m. – Exam/Quiz – CED 331A/C	
Exam/Quiz #5	Through Week 8 Reading and Worksheets and Canvas Worksheets	25 October 2017 5:30-6:45 – Exam/Quiz – CED 331A/C	
Exam/Quiz #6	Through Week 10 Reading and Worksheets and Canvas Worksheets	6 November 2017 5:30-6:45 – Exam/Quiz – CED 331A/C	
Exam/Quiz #7	Through Week 12 Reading and Worksheets and Canvas Worksheets	20 November 2017 5:30-6:45 – Exam/Quiz – CED 331A/C	
Exam/Quiz #8	Through Week 15 Reading and Worksheets and Canvas Worksheets	6 December 2017 5:30-6:45 – Exam/Quiz – CED 331A/C	
Daily Work Sheets (Web)	Linked to CHEM 121 Menu on Website		
Canvas Worksheets	Notification via Canvas		
CHEM 121 is a "non-traditionally flipped class". Due diligence is the responsibility of every student. This includes late enrollers!			

There will be Daily Work Sheets each week of the 15 weeks of instruction; the 16th week of the semester is exam time. The Daily Work Sheets will be provided to the student using any or all of the following: email, Dr. Carman's website or Canvas. **(Make sure your email address in myWNC and Canvas is working properly as there is no excuse to come empty-handed/unprepared to class or lab!)** Canvas-based worksheets are timed and have "narrow windows" for completion.

If you've never used Canvas, [please click here for Help](#) – also, you'll find it of great importance to download the Canvas app onto your phone, phablet, tablet or laptop, for your [iPhone](#) and your [Android](#), if you haven't already.

All Quizzes/exams are to be taken in the computer lab as previously indicated. You must be on time for the exams/quizzes/assessments as there is no admittance into the exam once it has begun; bring ONLY pencils and a non-programmable calculator with a jacket to the exams – leave all else in your vehicle under lock and key.

This is Dr. Carman's third attempt at using Canvas for instructional purposes – please bear with him as he continues to find his way through this learning platform.

Reading assignments are posted on Dr. Carman's website and students are expected to have completed, studied and learned the reading assignments in advance of the lecture period, as well as to have completed the worksheets per the Canvas instructions.

Student questions about the reading assignments are to be covered in office hours prior to class time, i.e., students are expected to attend office hours on a regular basis. The Daily Work Sheets will cover the reading assignments and may be cumulative in design. Student questions while working on the Daily Work Sheets are strongly encouraged and welcomed!

While answer keys are in Dr. Carman's office, they will not be made available until after you've recorded your responses in Canvas. cf also reading and homework assignment file on Dr. Carman's website for additional information regarding homework and Canvas. NOTE: just copying the answers won't help your scores or your learning; nor will memorizing the problems. If you understand the concepts and the processes, you'll do very well on the quizzes/exams – if not, you won't.

In the case of absenteeism in either (or both) lecture and /or lab, you may not complete the quiz/exam and your score for that day is a zero (0).

The structure for the Daily Work Sheets is as follows: the lecture period will be spent having students put (show; write; demonstrate) their work on the board for class discussion – this means that problem sets and reading must be completed ahead of class. Everyone must participate in the board work.

Failure to participate on the board results in a 10 point loss for every declination. The students who will get the most out of the board work are those who have the most questions.

Please remember that if you "W" from the course that it would be most courteous and respectful of you to contact your class/lab partner and Dr. Carman so that adjustments may be made in the classroom.

Experiments	Due for check-off before you leave lab (this means that you will have to complete the lab questions ahead of the lab; you will take the checked over experiments with you as you leave once Dr. Carman has checked them over) – if you leave without completing the lab and accompanying questions, it's a zero for the day. NOTE: Your lab questions and results will be entered into Canvas and graded in Canvas after you have left lab. Those files will open as per the homework files in Canvas. Keep in mind that the lab period is over at the scheduled time: plan your time accordingly as labs not completed by or before that time will receive a zero (0) for that day's lab experiment grade. There will be one or two exceptions to the lab due dates: those will be clarified as they come up.
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ANY Canvas testing or quizzing (this includes the in-class pre-post-test assessments/exams/quizzes) is to be done by yourself – "collaborative learning" is cheating and results in an "F" for the course. See Rules Section on Canvas.

Canvas is the official grade keeper. The format Canvas uses will determine your overall course percentage. Your course percentage will be matched against the Grading Scale on p. 3 or the curve as previously described/linked for your final course grade.