Course Department	CHEM	**Course Number**	**220**	**Course Credit Hours**	4
Catalog Course Description	Surveys the principles of carbon chemistry. Credit allowed in only one of CHEM 220 or 241. Three hours lecture/three hours laboratory.		**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	*CHEM 121*				
Faculty Comment					
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); risk of moderate to severe injury (injuries occurring as a result of experimental explosion) if not following safety rules and pre-lab instruction 100%.				
Lab Safety Supplies **REQUIRED**	**Purchased at the WNC Bookstore. ALL Students: Tyvek Lab Coat and Encon Safety/Chemical Splash Goggles with Indirect Venting; Anatomy and Physiology Students: Nitrile Gloves**				
Course Goals/Outcomes/Objectives	The student will be introduced to selected organic structures and reactions that are important in physiological activity and biochemistry. The student will be introduced to the structure and properties of compounds of biochemical interest such as amino acids, enzymes, carbohydrates, lipids and nucleic acids.				

Student Learning Outcomes	The student will be able to draw, demonstrate, and/or diagram selected organic structures and reactions that are important in physiological activity and biochemistry through textual materials, lectures, practice problems, and laboratory work. The student will be able to draw, demonstrate, and/or diagram the structure and properties of compounds of biochemical interest such as amino acids, enzymes, carbohydrates, lipids and nucleic acids through textual materials, lectures, practice problems, and laboratory work. The student will be able to draw, demonstrate, and/or diagram the matching intermediary metabolic pathways for the same bio-molecules. The properly prepared student will be able to complete these activities at or above a minimum level of 75% on an appropriate assessment tool.
Course Linkage to Academic Degree Program[s]	**General Education Mission**: CHEM 220 is a general education course that promotes the development of knowledge, skills, and attitudes that will benefit students in their personal and professional endeavors. **General Education Student Learning Outcome**: Students who successfully complete CHEM 220 satisfy the general education learning outcomes of demonstrating that they: Can use college-level mathematics skills; Possess an understanding of scientific inquiry and the role of science and technology in the modern world; Possess adequate problem solving, creative reasoning, and critical thinking skills. **Program Mission for AA/AS degree**: CHEM 220 satisfies the A.A./A.S. degree mission by providing academic knowledge and skills for successful transfer students to meet higher educational goals and is listed in Group C in the AS degree fact sheet.
Lecture and Lab Experiment Source	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.

Grading Scale

95-100% = A
90-94% = A-
87-89% = B+
83-86% = B
79-82% = B-
75-78% = C
70-74% = D
≤ 69% = F

Grade Assignation and Distribution to Required Work

NOTE: It is possible there may be questions from CHEM 121 on your exams!

Assignment	Comment(s) (ALL Exams Cumulatively Comprehensive)	Due Dates (ALL Exams Cumulatively Comprehensive)	Points Possible	Points Earned by Student
Exam 1	50 Questions	A week after … and Pharmacological Chemistry (Includes labs to date)	50	
Exam 2	75 Questions	A week after … and Amino Acid Metabolism (Includes labs to date)	75	
Exam 3	75 Questions	A week after … and Lipid Metabolism (Includes labs to date)	75	
Exam 4	150 Questions	Final Exam Week: BOTH lecture periods	150	
ACS Standardized Final Exam	Per ACS Design	Lab Period during Final Exam Week/RTBA (Week 16)	175	
Experiments	Due at the beginning of the next lab period.		70	
	Potato Polyphenol Oxidase is due 2 weeks after you begin it; turn in on lecture bench as you walk in to lab. Ethanol Biosynthesis is due 2 weeks after you begin it; turn in on lecture bench as you walk in to lab. Part 2 of the Ethanol experiment, meet in Dr. Carman's office.		105	
Total Possible Points in the Course			700	
To determine your course per cent: [(the points you earned)/700]*100 = your per cent. Compare to the grading scale above to determine your grade.				

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