Course Department	BIOL	**Course Numbers**	190 and 190L	**Course Credit Hours**	3 + 1
WNC Catalog Course Description	Covers the structure and function of cells. Included will be the major molecules of life, composition and physiology of cellular organelles, cellular metabolism, reproduction, motility, gene function and related topics. Note: BIOL 190/190L plus BIOL 191/191L transfer to UNR as fulfilling BIOL 190, 191 and 192 requirements.		**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)	BIOL 190: Math 96 or higher (excluding Math 120) with a grade of C- or better or corequisite of Math 126 or higher or appropriate score on the WNC placement or equivalent test **and** corequisite of Biology 190L Corequisites: BIOL 190L				
Faculty Comment	BIOL 190 and 190L are enjoying a revival of sorts since (besides being a major's course, a pre-med, pre-dental, pre-physical therapy course) rejoining the ranks of the pre-nursing pre-requisite courses. Many students believe that taking a BIOL course is "easier" than a CHEM or PHYS course. Nothing could be farther from the truth: if the three courses are taught with an integrating eye, it becomes clear early on that one can NOT study BIOL without a fundamental understanding of CHEM and PHYS, nor are the latter two properly studied without integrating BIOL into their lectures.				
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	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 Topics	All learners will have in-depth knowledge of the language of cellular and molecular biology, animal and plant cellular structure and function: Students will explain fundamental concepts associated with atomic structure, chemical bonding, water chemistry, and pH, and apply these concepts to the functioning of biological systems; Students will identify the basic structures and describe the functions of the four major classes of biological macromolecules and cellular structures, including eukaryotic organelles and membranes (and may include prokaryotic cells and viral particles, as well); Students will describe the processes of cellular transport, signaling, introductory intermediary metabolism, photosynthesis, cell division (mitosis and meiosis), heredity, gene expression and gene regulation and explain their significance to the functioning of biological systems; Students will apply scientific reasoning to draw conclusions from experimentally derived data from the Using a Single-Nucleotide Polymorphism to Predict Bitter-Tasting Ability laboratory experiment.
General Education Course Goals/Outcomes/Objectives	Upon successful completion of BIOL 190: Introduction to Cell and Molecular Biology, (defined as a 75% course score or better) learners will be able to (GESLO = General Education Student Learning Outcome; ISLO = Institutional Student Learning Outcome): Describe and explain the processes of cellular transport, signaling, metabolism, photosynthesis, cell division (mitosis and meiosis), heredity, gene expression and gene regulation and explain their significance to the functioning of biological systems (GESLO #1; ISLO #1); Illustrate and explain the structure and function of animal and plant cells and sub-cellular organelles (GESLO #1, #4; ISLO #1, #4, #7); Illustrate and explain the function of biomolecules at the sub-cellular and cellular level (GESLO #1, #4; ISLO #1, #4, #7); Draw conclusions from experimentally derived data in the laboratory (GESLO #1, #4; ISLO #1, #4, #7). Draw conclusions from experimentally derived data from the polymerase chain reaction (PCR) laboratory experiment (GESLO #1, #4; ISLO #1, #4, #7).
Course Broad-Based Student Learning Outcomes	The objectives of this course are to: 1) Introduce the basic methods and goals of science, especially as they apply to molecular and cell biology. 2) Introduce basic concepts in chemistry that support molecular and cell biology. 3) Introduce the basic structures and functions of cells as the basic units of all living things and as the building blocks of multicellular organisms. 4) Introduce basic biochemistry of cellular respiration and photosynthesis. 5) Introduce the molecular mechanisms and Mendelian principles of inheritance and gene expression.
Course Specific Student Learning Outcomes/Objectives/Goals	Purposely left blank by faculty.
Student Performance/Assessment Tool[s]	Daily Work Sheets, Laboratory Experiments and/or 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]	**General Education Mission**: BIOL 190 is a general education class 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 BIOL 190 satisfy the general education learning outcome of understanding the methods of science and the role of science and technology in the modern world; have problem solving, creative, and critical thinking skills; have effective and efficient learning skills.. **Program Mission for AA/AS degree**: BIOL 190 satisfies the A.A./A.S. degree mission by providing academic knowledge and skills for successful transfer to meet higher educational goals. **Program Student Learning Outcomes for AA/AS degree**: Students who successfully complete BIOL 190 will know the subject matter appropriate to the emphasis of the degree.
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. OpenStax Text Books are linked in your Reading assignment web file on Dr. Carman's website.

Grading Scale

96-100% = A
91-95% = A-
87-90% = B+
83-86% = B
79-82% = B-
75-78% = C 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

NOTE: Review the link for "The Prisoner's Dilemma", as I'm considering a variation of it for BIOL 190 if "W's" or "Walk-away F's" go above an unspecified, as yet, percentage in the course, cf, also, Section VII of Dr. Carman's Rules

Grade Assignation and Distribution to Required Work

Assignment	Exam Dates (ALL Exams Cumulatively Comprehensive)	Points Possible
Lecture Pre-Test (Assessment)	**29 August 2017, 331C CED** , 1600-1745	Points Determined in Canvas and Assignment Percent Distribution Set Up in Canvas, as well.
NSBE/Q #1	**7 September 2017, 331C CED** , 1600-1745	
NSBE/Q #2	**19 September 2017, 331C CED** , 1600-1745	
NSBE/Q #3	**10 October 2017, 331C CED,** 1600-1745	
Lecture Final Exam (Post Test Assessment)	Completed during the 8th week; **19 October 2017, 331C CED** , 1600-1715	
Lab Final Exam	Completed during the 8th week; **19 October 2017, 331C CED**, 1900-2145	
Lab Experiments	Due per Canvas Instructions	
Worksheets	Due per Canvas Instructions	
Canvas determines/calculates your course per cent for you – you only have to compare your results against the grading scale – cf also Grading Scale comments in other Sections of Dr. Carman's Classroom Rules/Syllabus.		