

<b>Course Department</b>	BIOL	<b>Course Number</b>	251	<b>Course Credit Hours</b>	4
<b>WNC Catalog Course Description</b>	BIOL 251 emphasizes the distribution, form, structure and physiology of microorganisms in laboratory. Develops the student's skills in aseptic procedures, isolation and identification. Three hours lecture/three hours laboratory per week.		<b>Course Transferability</b>	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.	
<b>Minimum Lecture Hours per Week (16 week Semester)</b>	Three hours of Lecture		<b>Minimum Lab Hours per Week (16 week Semester)</b>	Three hours of Laboratory.	
<b>Minimum Lecture Hours per Week (8 Week Semester)</b>	Six hours of Lecture.		<b>Minimum Lab Hours per Week (8 week Semester)</b>	Six hours of Laboratory.	
<b>Minimum Lecture Hours per Week (3 Week Semester)</b>	16.25 hours of Lecture.		<b>Minimum Lab Hours per Week (3 week Semester)</b>	16.25 hours of Laboratory.	
<b>Pre-Requisite or Co-Requisite Courses (if the latter is applicable)</b>	BIOL 190 & 190L with a grade of C or better or BIOL 223 with a grade of C or better or CHEM 121 with a grade of C or better. May be repeated a maximum of two times with the past five years.				
<b>Faculty Comment</b>	BIOL 251 is designed specifically for students who are studying towards entering a program of education in Nursing or Allied Health Fields. BIOL 251 is not a major's course, nor does it fulfill that roll at most other institutions of higher education.				
<b>Identify Any Risk Management Issues</b>	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 serious infection if safety and aseptic technique is not adhered to 100%				
<b>Lab Safety Supplies REQUIRED</b>	<b>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!</b>				
<b>Course Topics</b>	All students will have in-depth (one semester of a lab-based one-semester course) knowledge of microbial structures and the metabolic strategies, genetics, and ecology of prokaryotic microbes, eukaryotic microbes, and viruses using appropriate terminology; hypothetical or literature-based disease scenarios; scientific reasoning and the principles of disease prevention, pathogenicity, epidemiology, and host immune responses; and develop a plan of disease control or prevention; using proper aseptic laboratory technique to transfer, isolate, and stain cultured microorganisms, and then analyze their macro- and micro-morphological characteristics; to apply scientific reasoning to deduce the identification of or test hypotheses about microorganisms.				

<p><b>General Education Course Goals/Outcomes/Objectives</b></p>	<p>Upon successful completion of BIOL 251, General Microbiology, (defined as a 75% course score or better) learners will be able to (GESLO = General Education Student Learning Outcomes; ISLO = Institutional Student Learning Outcomes):</p> <p><i>The information in the parentheses after a course objective refers to the specific general education student learning outcome or institutional learning outcome (GESLO or ISLO) that the objective meets. Objectives without this information are not linked to WNC's general education program.</i></p> <p>Describe the anatomy and physiology, pathology and fundamental therapeutic treatments of the different genera of micro-organisms (GESLO #1; ISLO #1);</p> <p>Illustrate and explain the function of cellular and non-cellular types of micro-organisms (GESLO #1; ISLO #1);</p> <p>Illustrate and explain the characteristics of micro-organisms at the laboratory, sub-cellular and cellular level (GESLO #1; ISLO #1);</p> <p>Draw conclusions from experimentally derived data in the laboratory (GESLO #1, #4; ISLO #1, #4).</p>
<p><b>Course Broad-Based Student Learning Outcomes</b></p>	<p>A) Students will identify microbial structures and describe the metabolic strategies, genetics, and ecology of prokaryotic microbes, eukaryotic microbes, and viruses using appropriate terminology.</p> <p>B) Students will evaluate hypothetical or literature-based disease scenarios; apply scientific reasoning and the principles of disease prevention, pathogenicity, epidemiology, and host immune responses; and develop a plan of disease control or prevention.</p> <p>C) Using proper aseptic laboratory technique, students will transfer, isolate, and stain cultured microorganisms, and then analyze their macro- and micro-morphological characteristics.</p> <p>D) Students will apply scientific reasoning to deduce the identification of or test hypotheses about microorganisms.</p>
<p><b>Student Performance/Assessment Tool[s]</b></p>	<p>Daily Work Sheets, Laboratory Experiments and/or Exams as described below.</p>
<p><b>Minimum Studying Time Required (per day! 7 days a week!)</b></p>	<p>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.</p>
<p><b>Course Linkage to Academic Degree Program[s]</b></p>	<p><b>General Education Mission:</b> BIOL 251 is a general education course <b>only for the AAS degree in Nursing</b> that promotes the development of knowledge, skills, and attitudes that will benefit students in their personal and professional endeavors.</p> <p><b>General Education Student Learning Outcome:</b> Students who successfully complete BIOL 251 satisfy the general education learning outcomes by 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.</p> <p><b>Program Mission for AA/AS degree:</b> BIOL 251 satisfies the A.A./A.S. degree mission by providing academic knowledge and skills for successful transfer students to meet a limited number of higher educational goals and are listed in Group C under the AS degree requirements.</p>
<p><b>Lecture and Lab Experiment Source</b></p>	<p><a href="http://www.drcarman.info">http://www.drcarman.info</a> Dr. Carman uses no traditional textbooks or lab books: this saves the students money and keeps information more fluid and current.</p>
<p><b>Free, Web-Based Textbook If You So Desire – NOT Required</b></p>	<p>Open Stax <a href="#">General Microbiology Text</a></p>

## Grading Scale

<p>96-100% = A            91-95% = A-            87-90% = B+            83-86% = B            79-82% = B-            75-78% = C</p> <p><b>Above the minimum course score of 75% is a properly prepared student.</b></p> <p>70-74% = D</p> <p><b>74% or below for the course is an improperly prepared student.</b></p> <p>≤ 69% = F</p> <p>cf also Dr. Carman's Main Web Page  <a href="http://www.drcarman.info">http://www.drcarman.info</a></p>
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### Grade Assignment and Distribution to Required Work

Assignment	Comment(s) ( <b>ANY Quizzes or Exams are Cumulatively Comprehensive</b> )	Dates/Locations	Percent (%) of Grade
<b>"BIG" Exams</b>			
<b>Post BIOL 190 Assessment</b>	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	<b>331C CED, 24 October 2017, 1600-1715</b>	Determined in Canvas
<b>Pre-BIOL 251 Assessment</b>	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	<b>331C CED, 24 October 2017, 1730-1845</b>	Determined in Canvas
Post-BIOL 251 BIOL 190 Assessment	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	<b>331C CED, 14 December 2017, 1600-1715</b>	Determined in Canvas
Post-BIOL 251 Assessment	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	<b>331C CED, 14 December 2017, 1730-1845</b>	Determined in Canvas
Lab Theoretical Exam	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	<b>331C CED, 14 December 2017, 1900-2145</b>	Determined in Canvas
<b>NOT so "BIG" Exams (NSBE/Q) Dr. Carman Provides and Collects the Scratch Paper (if provided – otherwise, there will be no scratch paper used)</b>			

NSBE/Q #1	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	9 November 2017 1600-1715 <b>CED 331C</b>	Determined in Canvas
NSBE/Q #2	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	21 November 2017 1600-1715 <b>CED 331C</b>	
NSBE/Q #3	Canvas-based; Bring a non-programmable calculator and pencils; Dr. Carman provides scratch paper if needed; students don't see the exam, again.	5 December 2017 1600-1715 <b>CED 331C</b>	
Exam/Quiz date non-congruence between this and other documents on Dr. Carman's website is resolved by, and with, this specific document.			
BIOL 251 is a standard lecture/lab course that requires internet access, use and software savvy. Due diligence is the responsibility of every student. This includes late enrollers!			

<p><b>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!</b> Canvas-based worksheets/exams are timed and have "narrow windows" for completion.</p> <p>If you've never used Canvas, <a href="#">please click here for Help</a> – also, you'll find it of great importance to download the Canvas app <a href="#">onto your phone, phablet, tablet or laptop, for your iPhone and your Android</a>, if you haven't already. <b>All Quizzes/exams are taken in the computer lab as previously indicated with only one (1) tab opened. If you're late to the exam/quiz, you are not permitted to take the exam. 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.</b></p> <p>Reading/Lecture/Lab 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 any assigned worksheets.</p> <p><b>Students are expected to attend office hours on a regular basis.</b> Student questions are strongly encouraged and welcomed!</p> <p>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).</p> <p>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.</p>		
Lab Experiments	Due 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. 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.	Determined in Canvas
<p>ANY Canvas testing or quizzing (this includes the pre-post-test assessments) is to be done by yourself – "collaborative learning" is cheating and results in an "F" for the course. See Rules Section on Canvas.</p> <p>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.</p>		