

5/28/2025

DATE

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REQUIRED COURSE

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ELECTIVE COURSE

MSD

DIVISION

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NEW COURSE

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REVISION

# Lake Land College

## Course Information Form

<b>COURSE NUMBER:</b>	BIO-235	<b>TITLE: (30 Characters Max)</b>	Microbiology										
<b>SEM CR HRS:</b>	4.0	<b>Lecture:</b>	3.0	<b>Lab:</b>	3.0	<b>ICCB Lab:</b>	3.0	<b>ECH:</b>	6.0				
<b>Course Level:</b>	<input type="checkbox"/> Gen Ed / IAI <input checked="" type="checkbox"/> Baccalaureate /Non-IAI		<input type="checkbox"/> Career/Technical <input type="checkbox"/> Dev Ed/ Not in Degree Audit		<b>Clinical Practicum:</b>	0.0	<b>Work-based Learning:</b>	0.0	<b>WBL ECH:</b>	0.0			
<b>COURSE PCS #</b>	11 - 26.0502		<b>IAI Code:</b>		N/A		<b>Contact Hours (Minutes/Week)</b>						
<b>Repeatable (Y/N):</b>	N	<b>Pass/Fail (Y/N):</b>	N	<b>Variable Credit (Y/N):</b>	N	<b>Min:</b>		<b>Max:</b>		16 Wks	300	8 Wks	600
<b>Prerequisites:</b>	BIO-100 or consent of the instructor												
<b>Corequisites:</b>	None												
<b>Catalog Description: (40 Word Limit)</b>	This course covers a survey of microorganisms with detailed study of the biology, metabolism, growth, death, genetics and methods of differentiation of bacteria. Also classification, control of organisms by physical and chemical methods, immunology and diseases are covered.												

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Introduction to microbiology and microbial eukaryotes	14	4		
Introduction and survey of prokaryotes	8	18		
Disease, genetics and metabolism in prokaryotes	8	15		
Control of microbes	9	7		
Human immunity against microorganisms	6			
<b>TOTAL</b>	<b>45</b>	<b>44</b>	<b>0</b>	<b>0</b>

### EVALUATION

<b>QUIZZES</b>	<input checked="" type="checkbox"/>	<b>EXAMS</b>	<input checked="" type="checkbox"/>	<b>ORAL PRES</b>	<input type="checkbox"/>	<b>PAPERS</b>	<input checked="" type="checkbox"/>
<b>LAB WORK</b>	<input checked="" type="checkbox"/>	<b>PROJECTS</b>	<input type="checkbox"/>	<b>COMP FINAL</b>	<input type="checkbox"/>	<b>OTHER</b>	<input type="checkbox"/>

### COURSE MATERIALS

<b>TITLE:</b>	Tolaro's Foundations in Microbiology
<b>AUTHOR:</b>	Barry Chess
<b>PUBLISHER:</b>	McGraw Hill
<b>VOLUME/EDITION/URL:</b>	11th edition
<b>COPYRIGHT DATE:</b>	2021

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		<i>The student will be able to:</i>
Introduction to microbiology and microbial eukaryotes	18	1. Learn the significance of microbiology. 2. Correctly utilize a microscope. 3. Illustrate unique identifying characteristics, classifications and medical significances of microbial protozoa. 4. Appraise unique identifying characteristics, classifications and medical significances of microbial fungi. 5. Examine unique identifying characteristics, classifications and medical significances of viruses.
Introduction and survey of prokaryotes	26	1. Compare the general characteristics and cellular structures of bacteria. 2. Relate the physical and chemical requirements that promote microbial growth, as well as the measurement of microbial growth rates.

Disease, genetics and metabolism in prokaryotes	23	<ol style="list-style-type: none"> <li>1. Summarize the basic components of photosynthesis as well as aerobic and anaerobic respiration.</li> <li>2. Compare microbial metabolism and its significance to the identification of bacteria.</li> <li>3. Relate assorted bacterial diseases and their corresponding causative agents.</li> <li>4. Integrate microbial genetics, including transformation and conjugation in their significance to disease evolution resistance.</li> </ol>
Control of microbes	16	<ol style="list-style-type: none"> <li>1. Relate the various factors which influence microbial control to the types of microbial cellular injury they cause.</li> <li>2. Critique the physical methods of controlling microbial populations and under which conditions this method is suitable.</li> <li>3. Critique the chemical methods of controlling microbial populations and under which conditions this method is suitable.</li> <li>4. Clarify the history, mode of action, the use and evaluation of antimicrobial agents and the consequent development of microbial resistance to some of these agents.</li> </ol>
Human immunity against microorganisms	6	<ol style="list-style-type: none"> <li>1. Relate the symbiotic relationships between microorganisms and the human body.</li> <li>2. Explain the factors that determine the establishment and transmission of diseases and associated bacterial toxins.</li> <li>3. Identify the first line of defense, the natural physical and chemical barriers of the human body that prevent the entry of disease causing pathogens.</li> <li>4. Determine the roles of leucocytes, inflammation, fever and chemical inhibitors in controlling the spread of pathogens and toxins, which are the second line of defense.</li> <li>5. Interpret the processes of cell-mediated and humoral immunity in controlling and destroying the presence of pathogens and toxins, which is the third line of defense.</li> </ol>
89		

Outcomes*	Outcome Titles	At the successful completion of this course, students will be able to:
Course Outcome 1	Microbe Charact	Analyze basic characteristics of microbes (fungi, protozoan, bacteria and virus).
Course Outcome 2	Lab Skills/Knowl	Apply laboratory skills and knowledge.
Course Outcome 3	Causative Agents	Evaluate connections between causative agents and symptoms.
Course Outcome 4	Microbial Control	Correlate microbial control mechanisms regarding the growth and spread microbes.
Course Outcome 5	Natural Defense	Evaluate the human body's natural defense mechanisms.
Primary Laker Learning Competency Scientific Literacy: Students apply the scientific process to real-life situations.		
Secondary Laker Learning Competency	Information & Technology Literacy: Students evaluate information effectively using the appropriate technological tools.	

\*Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.