BIOL 2117 - Introductory Microbiology (version 201003L)

Course Title	Course Development	Learning Support
Introductory Microbiology	Standard	No

Course Description

Provides students with a foundation in basic microbiology with emphasis on infectious disease. Topics include microbial diversity, microbial cell biology, microbial genetics, interactions and impact of microorganisms and humans, microorganisms and human disease.

Pre-requisites

BIOL 2113 and BIOL 2113L OR BIOL 1111 and BIOL 1111L

Regstr. Co-requisites

Regstr. Co-requisites: None

True Co-requisites

True Co-requisites: All Required

BIOL 2117L - Introductory Microbiology Lab (201003L)

Course Length

	Lecture Contact Time	Regular Lab Type	Reg. Lab Contact Time	Other Lab Type	Oth. Lab Contact Time	Total Contact Hrs
Contact Hours Per Week	**3 hrs**	**N/A**	**0 hrs**	**N/A**	**0 hrs**	**3 hrs**
Contact Min/Hrs Per Semester	**2250 min**		**0 min**		**0 min**	**45 hrs**

	Lecture Credit Hours	Lab Credit Hours	Total Credit hours	WLU
Semester Credit Hours	**3**	**0**	**3**	**101.25**

Competencies & Outcomes

Order	Description

1 **Microbial Diversity**

Order	Description	Learning Domain	Level of Learning
1	Explain characterization of organisms, including viruses, bacteria, prions, fungi, and protozoa.	Cognitive	Comprehension
2	Classify organisms.	Cognitive	Comprehension

2 **Microbial Cell Biology**

Order	Description	Learning Domain	Level of Learning
1	Summarize the morphology of bacteria	Cognitive	Comprehension
2	Explain the fine structure of bacteria.	Cognitive	Comprehension
3	Identify common gram negative and gram positive bacteria.	Cognitive	Knowledge
4	Describe bacteria with unusual properties and complex morphology.	Cognitive	Knowledge

5	Describe bacterial growth.	Cognitive	Knowledge
6	Explain the replication of bacteria.	Cognitive	Comprehension
7	Explain the replication of viruses.	Cognitive	Comprehension
8	Describe the various types of energy production.	Cognitive	Knowledge
9	Understand the metabolic diversity of microbes.	Cognitive	Comprehension

3 **Microbial Genetics**

Order	Description	Learning Domain	Level of Learning
1	Describe the cause, consequences and uses of mutations.	Cognitive	Knowledge
2	Explain genetic transfer and recombination.	Cognitive	Comprehension
3	Identify applications of biotechnology.	Cognitive	Knowledge

4 **Interactions and Impact of Microorganisms and Humans**

Order	Description	Learning Domain	Level of Learning
1	Describe factors that affect the ability of the host to resist infection.	Cognitive	Knowledge
2	Describe host innate or natural defense mechanisms.	Cognitive	Knowledge
3	Discuss innate host defenses that offer resistance to microorganism establishment.	Cognitive	Comprehension
4	Discuss adaptive host defenses that offer resistance to microorganism establishment, including antibody formation, active and passive immunity, and natural and acquired immunity	Cognitive	Comprehension
5	Differentiate between innate and acquired immunity.	Cognitive	Analysis
6	Discuss the disorders of the immune system.	Cognitive	Comprehension
7	Discuss principles of epidemiology.	Cognitive	Comprehension
8	Explain portals of entry for pathogenic agents.	Cognitive	Comprehension
9	Describe the evasion mechanisms of the pathogen.	Cognitive	Knowledge
10	Describe indirect and direct disease transmission methods.	Cognitive	Knowledge
11	Discuss the effects of immunosuppressive drug therapy, concurrent disease, and aging on the host-parasite relationship.	Cognitive	Comprehension
12	Discuss the methods by which various antibiotics and chemotherapeutic agents affect microorganisms.	Cognitive	Comprehension
13	Discuss practical applications of various disinfection and sterilization procedures.	Cognitive	Comprehension
14	Evaluate sterility testing procedures.	Cognitive	Evaluation

5 **Microorganisms and Human Disease**

Order	Description	Learning Domain	Level of Learning
1	Identify the causative agents for the major microbial diseases for each of the following body systems: respiratory, digestive, genitourinary, integumentary, cardiovascular, nervous, and lymphatic.	Cognitive	Knowledge
2	Describe the symptoms and treatment for the major microbial diseases for each of the body systems.	Cognitive	Knowledge
3	Discuss methods of control and prevention of disease.	Cognitive	Comprehension
4	Discuss and describe emerging infectious diseases and their ramifications on human health.	Cognitive	Comprehension