

# Syllabus

## INDIANA WESLEYAN UNIVERSITY

**BIOL-506: Microbiology**

**Summer I 2022: 5/3/22-6/27/22**

**Format:** Online Asynchronous

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### Course Description

This course examines the structure, physiology, and activities of pathogenic and non-pathogenic microorganisms. Emphasis is placed on the interaction of microorganisms with each other, their hosts, and the environment. Course activities will apply principles of microbiology to public health, biotechnology, environmental science, and industrial processes.

**Credit Hours:** 3

**Prerequisite Courses:** passing grade in undergraduate Biology

**Prerequisite Skills and Knowledge:** Basic understanding of cell biology

### Course Outcomes

**Upon completion of this course, you should be able to:**

1. Describe the general characteristics of bacteria, viruses, fungi, algae, and protozoa.
2. Compare and contrast the mode of action of pathogenic and nonpathogenic micro-organisms.
3. Examine the role of micro-organisms in infectious diseases and immune responses.
4. Describe basic analytical and diagnostic techniques used in clinical microbiology.

5. Demonstrate an understanding of the principles and concepts of microbiology and applications to biotechnology, environmental science, and industrial processes.
6. Through interactive course activities and discussion forums, apply critical thinking skills to integrate concepts, precepts, and fundamentals of microbiology into plausible solutions to address real-world issues.

### Course Textbook

Cornelissen, C. N., Fisher, B. D., & Harvey, R. A. (2013). *Lippincott's illustrated reviews: Microbiology* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins Health.

### Course Technology

- None

### IWU Diversity Statement

IWU, in covenant with God's reconciling work and in accordance with the Biblical principles of our historic Wesleyan tradition, commits to build a community that reflects Kingdom diversity. We will foster an intentional environment for living, teaching and learning, which exhibits honor, respect, and dignity. Acknowledging visible or invisible differences, our community authentically values each member's earthly and eternal worth. We refute ignorance and isolation and embrace deliberate and courageous engagement that exhibits Christ's commandment to love all humankind.

### Grading Scale

Grade	Quality Points Per Credit	Percentage
<b>A</b>	4.0	95%–100%
<b>A-</b>	3.7	92%–94.9%
<b>B+</b>	3.3	89%–91.9%
<b>B</b>	3.0	85%–8.9%
<b>B-</b>	2.7	82%–84.9%
<b>C+</b>	2.3	79%–81.9%
<b>C</b>	2.0	75%–78.9%
<b>C-</b>	1.7	72%–74.9%
<b>D+</b>	1.3	69%–71.9%

<b>D</b>	1.0	65%–68.9%
<b>F</b>	0.0	0%–64.9%

## Grading Policies

Your grading policy for your course is dependent on your school and program. Your grading policies can be found in the IWU Catalog.

## Letter Grade Equivalencies

<b>Grade</b>	<b>Description of Work</b>
<b>A</b>	Clearly stands out as excellent performance. Has unusually sharp insights into material and initiates thoughtful questions. Sees many sides of an issue. Articulates well and writes logically and clearly. Integrates ideas previously learned from this and other disciplines. Anticipates next steps in progression of ideas. Example "A" work should be of such nature that it could be put on reserve for all cohort members to review and emulate. The "A" cohort member is, in fact, an example for others to follow.
<b>B</b>	Demonstrates a solid comprehension of the subject matter and always accomplishes all course requirements. Serves as an active participant and listener. Communicates orally and in writing at an acceptable level for the degree program. Work shows intuition and creativity. Example "B" work indicates good quality of performance and is given in recognition for solid work; a "B" should be considered a good grade and awarded to those who submit assignments of quality less than the exemplary work described above.
<b>C</b>	Quality and quantity of work in and out of class is average. Has marginal comprehension, communication skills, or initiative. Requirements of the assignments are addressed at least minimally.
<b>D</b>	Quality and quantity of work is below average. Has minimal comprehension, communication skills, or initiative. Requirements of the assignments are addressed at below acceptable levels.
<b>F</b>	Quality and quantity of work is unacceptable and does not qualify the student to progress to a more advanced level of work.



## Course Module Summary

Module	Devotion*	Discussion*	Dropbox*	Exam*	Total Points per Module
<b>Orientation Module</b>	--	--	--	--	10
<b>Module One</b>	1/0	1/40	1/120	0/0	160
<b>Module Two</b>	1/0	1/20	2/205	0/0	225
<b>Module Three</b>	1/0	1/90 or 5	2/200	0/0	290 or 205
<b>Module Four</b>	1/0	1/90 or 5	2/200	0/0	290 or 205
<b>Module Five</b>	1/0	1/90 or 5	1/100	0/0	195 or 105
<b>Module Six</b>	1/0	1/55	0/0	0/0	55
<b>Module Seven</b>	1/0	0/0	1/100	0/0	100
<b>Module Eight</b>	0/0	1/40	0/0	1/150	190
<b>End of Course Survey</b>					10 extra credit
<b>TOTAL</b>	<b>7/0</b>	<b>7/255</b>	<b>10/925</b>	<b>1/150</b>	<b>1345</b>

\* Number of Activities/Sum Point Totals

## Course Assignments

### Module One Outline

Title	Type	Due Dates	Time	Points
<b>1.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>1 hour</b>	0
<b>1.2 Post-reading questions</b>	Dropbox	Due by the end of the module.	<b>8 hours</b>	120
<b>1.3 Journal Article Review</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>4 hours</b>	40
<b>1.4 Presentation Topic Selection</b>	Dropbox	Due by the end of the module.	<b>1 hour</b>	0
<b>Totals</b>			<b>14 hours*</b>	<b>160</b>

### Module Two Outline

Title	Type	Due Dates	Time	Points
<b>2.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>1 hour</b>	0
<b>2.2 Post-reading questions</b>	Dropbox	Due by the end of the module.	<b>10 hours</b>	180
<b>2.3 Online Article Review</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>2 hours</b>	20
<b>2.4 Gram Staining Lab</b>	Dropbox	Due by the end of the module.	<b>2 hours</b>	25
<b>Totals</b>			<b>15 hours*</b>	<b>225</b>

## Module Three Outline

Title	Type	Due Dates	Time	Points
<b>3.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>1 hour</b>	0
<b>3.2 Post-reading questions</b>	Dropbox	Due by the end of the module.	<b>10 hours</b>	180
<b>3.3 Presentation</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>2 hours</b>	90 or 5**
<b>3.4 Microbiology Lab</b>	Dropbox	Due by the end of the module.	<b>2 hour</b>	20
<b>Totals</b>			<b>15 hours*</b>	<b>290 or 205**</b>

## Module Four Outline

Title	Type	Due Dates	Time	Points
<b>4.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>1 hour</b>	0
<b>4.2 Post-reading questions</b>	Dropbox	Due by the end of the module.	<b>10 hours</b>	180
<b>4.3 Presentation</b>	Discussion	Initial post due by the end of the 4th day of the module; responses to at least two students due by the end of the module.	<b>2 hours</b>	90 or 5**
<b>4.4 Microbiology Lab</b>	Dropbox	Due by the end of the module.	<b>2 hour</b>	20
<b>Totals</b>			<b>15 hours*</b>	<b>290 or 205**</b>

## Module Five Outline

Title	Type	Due Dates	Time	Points
<b>5.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the week; responses to at least two students due by the end of the week.	<b>1 hour</b>	0
<b>5.2 Post-reading questions</b>	Dropbox	Due by the end of the week.	<b>6 hours</b>	100
<b>5.3 Presentation</b>	Discussion	Initial post due by the end of the 4th day of the week; responses to at least two students due by the end of the week.	<b>2 hours</b>	95 or 5**
<b>Totals</b>			<b>9 hours*</b>	<b>195 or 105**</b>

## Module Six Outline

Title	Type	Due Dates	Time	Points
<b>6.1 Applied Microbiology</b>	Discussion	Initial post due by the end of the 4th day of the week; responses to at least two students due by the end of the week.	<b>6 hours</b>	55
<b>Totals</b>			<b>6 hours*</b>	<b>55</b>

## Module Seven Outline

Title	Type	Due Dates	Time	Points
<b>7.1 Devotional</b>	Discussion	Initial post due by the end of the 4th day of the week; responses to at least two students due by the end of the week.	<b>1 hour</b>	0
<b>7.2 Case Study</b>	Dropbox	Due by the end of the week.	<b>10 hours</b>	100
<b>Totals</b>			<b>11 hours*</b>	<b>100 points</b>



## Module Eight Outline

Title	Type	Due Dates	Time	Points
<b>8.1 Applied Microbiology 2</b>	Discussion	Initial post due by the end of the 4th day of the week; responses to at least two students due by the end of the week.	<b>4 hours</b>	40
<b>8.2 Exam</b>	Exam	Due by end of week	<b>4 hours</b>	150
<b>8.3 End of Course Survey</b>	Dropbox	Due by end of week	<b>30 minutes</b>	10 extra credit
<b>Totals</b>			<b>8:30 hours*</b>	<b>190</b>
<b>TOTALS</b>		<b>93:30 hours*</b>	<b>1345 Points</b>	

\* These timings are based on estimations of average times to complete each assignment. Actual assignment completion times will vary.