North Iowa Area Community College
Course Outline

Please follow the included instructions when completing this form. Direct questions to Division Chair. After Course Outline is completed, please submit to Division Chair for review, who then submits to Administrative Assistant to the Vice President for Academic Affairs for review by the Curriculum and Academic Affairs Council (CAAC).

Prepared by:	Jason Friday
Date Approved by CAAC:	September 9, 2019
Course Title:	Microbiology
Course Number:	BIO-186
Equivalent Prior Course Numbers:	70-109, BIOL-109
Academic Division/Department:	Natural Science

Credits – Semester Hours (s.h.): 4

Contact Hours As defined by the Iowa Department of Education in consultation with Division Chair/Registrar (see attached instructions).

Lecture:	45	1 s.h. = 15 contact hours
Lab:	30	1 s.h. = 30 contact hours
Clinical Practice:	0	1 s.h. = 45 contact hours
Work Experience:	0	1 s.h. = 60, 75, 90, or 105 contact hours
Total:	**75**	

Prerequisite(s):

None

Corequisite(s):

None

Course Description:

Morphology, physiology, taxonomy, and relationship of microorganisms to disease. In-depth laboratory study and suitable lecture material with applications to agriculture, industry, and medicine.

Required Textbook(s) and Other Required Materials:

Microbiology, Parker, Schneegurt, Thi Tu, Foster, and Lister, Open Stax

Microbiology Brief: Lab Theory and Application, 3rd Ed. LeBoffe and Pierce, Morton

Purpose of Course Check one [X] in consultation with Division Chair.

X	Arts and Sciences (General Education)
	Arts and Sciences
	Career and Technical (General Education)
	Career and Technical
	Developmental

If course is offered only in specific semesters, please explain below:

Maximum number of weeks for which the course is offered:

16

[Do not edit the following section. Managed by Academic Affairs]

Is this a Core Competency Anchor Course? YES ☐ NO ☐

If "Yes," list Core Competency Student Learning Outcome Numbers being taught and assessed in this course (2.2, 3.1, etc.)

(Example) 2.2 [Press Tab to create new rows for each SLO]

Student Learning Outcomes (SLOs):

GENERAL EDUCATION SKILLS

Upon successful completion of this course, students will be able to do the following:

1. Scientific Literacy: Students will demonstrate a knowledge and understanding of scientific concepts and processes required for personal decision making and responsible participation in a civic affairs.
2. Critical Thinking: Students will use goal-directed reasoning to arrive at valid conclusions, meaningful solutions, and informed evaluations.

COURSE OBJECTIVES

1. The students will recognize positive roles microbes play in almost every aspect of their lives and the environment.

2. The students will compare and contrast basic prokaryotic cell anatomy to basic eukaryotic cell anatomy.

3. The student will successfully make and focus 8 slides up to the 1000x objective (oil immersion) of the compound microscope to display a field of view for each of the staining techniques used in class.

4. The students will summarize the processes of photosynthesis, aerobic respiration, and fermentation.

5. The students will synthesize a dichotomous key for the species of bacteria used in class.

6. The students will apply the scientific method to correctly identify three unknown species of bacteria.

7. The students will apply the Theory of Evolution by Natural Selection to the evolution of the human immune system, the emergence of antibiotic resistance, and the use of biotechnology in medicine and agriculture.