OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE:	October 1994
COURSE REVISED IMPLEMENTATION DATE:	May 2014
COURSE TO BE REVIEWED:	May 2020
(six years after UEC approval)	*(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

BIO 309	Faculty of Science/Biology	4
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Microbiology I

COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This course examines advanced concepts in modern microbiology including the fundamentals of microbial structure, bioenergetics, growth, and genetics, predominately by considering a variety of bacteria and viruses.

Note: Students with credit for BIO 203 may not take BIO 309 for further credit.

PREREQUISITES: BIO 111 and BIO 112. Note: As of May 2015, prerequisites will change to the following: BIO 111 and 112, plus 8 biology credits numbered 200 and above.

COREQUISITES:

PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

(a) Replaces: **BIO 203**

(b) Cross-listed with:

(c) Cannot take: **BIO 203** for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: **90**

STRUCTURE OF HOURS:

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:	**45**	Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:

Length of course:

Hours per day:

OTHER:

Maximum enrolment: **24**

Expected frequency of course offerings:

(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☒ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☒ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☒ Yes	☐ No

Course designer(s): **Terry Starr, Stephen Thomas**

Department Head: **Allan Arndt** Date approved: **June 4, 2013**

Campus-Wide Consultation (CWC) Date of meeting: **June 14, 2013**

Curriculum Committee chair: **David Fenske** Date approved: **September 20, 2013**

Dean/Associate VP: **Lucy Lee** Date approved: **September 20, 2013**

Undergraduate Education Committee (UEC) approval Date of meeting: **October 25, 2013**

LEARNING OUTCOMES:

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

a) Demonstrate information competency of the various prokaryotic life strategies covered in the course: reproduction, nutrition, biochemistry, and genetics.
b) Apply knowledge from cell biology and genetics that emphasize the central role of cell structure in determining cell function.
c) Integrate various biochemical concepts that allow microbes to survive and flourish in a vast array of environmental conditions.
d) Critically analyze relevant literature and current news reports pertaining to microbial epidemics.
e) Interpret biological data from scientific figures and experiments.
f) Analyze microbial life strategies that affect industrial practices.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lecture, demonstrations, small group practice, discussions, audio-visual presentations, use of models and charts, labs.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☒ Examination(s) ☐ Portfolio assessment ☐ Interview(s)

☐ Other (specify):

☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Bauman RW, 2011, Microbiology with Diseases by Body System, Pearson
Lab handouts: UFV Press

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Midterm:	25%
Lecture final:	50%
Labs:	25%

Students must pass both the lab and lecture portions of the course in order to receive a passing grade.

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Lecture #1: Introduction: Ch. 2, Specimen Identification
Lecture #2: Cell Structure, Ch. 3
Lecture #3: Cell Wall, Ch. 3
Lab #1: Basic Techniques
Lecture #4: Nutrition, Ch. 5
Lecture #5: Growth, Ch. 6
Lab #2: Staining Techniques
Lecture #6: Metabolism, Energy & Enzymes, Ch. 7
Lecture #7: Metabolism; 6C, 5C, & TCA Cycles
Lab #2 (continued): Staining Techniques
Lecture #8: Metabolism; Fermentation, Mixed Acids, Ch. 8
Lecture #9: Metabolism; Biosynthesis
Lab #3: API and Virus Titer
Lecture #10: Catch Up and Review

Course Content continued:

Midterm I: Ch. 2,3,5,6,7,8,9
Lab #3 (cont'd) API & Virus Titer Lecture #11: Nucleic Acids, Ch. 10
Lecture #12: Proteins, Ch. 10
Lab #4: Environmental Factors
Lecture #13: Enzyme Activity, Ch. 11
Lecture #14: Gene Structure, Ch. 12
Lecture #15: Mutations, Ch. 12
Lecture #16: Plasmids, Transposable Elements, Ch. 13
Lab #5: Biochemical Activities
Lecture #17: Conjugation, Transformation, Ch. 13
Lecture #18: Molecular Genetics, Ch. 14
Lab #6: Student Project

Midterm II: Ch. 10, 11, 12, 13,
Lab #6: Student Project (cont'd)
Lecture #19: Molecular Genetics, Ch. 14 (cont'd)
Lecture #20: Bacterial Control, Ch. 15, 16
Lab #6: Student Project (cont'd)
Lecture #21: General Viruses, Ch. 17
Lecture #22: Bacteriophage, Ch. 18
Lab #6: Student Project (cont'd)
Lecture #23: Eukaryotic Viruses, Ch. 19
Lecture #24: Common Parasites Ch. 20