

Program Name: BIOLOGY	Submitted by: Science Work Group- Sandi Weiss, CLS Program Director and Patti Strobl, Department Head
Division: ARTS AND SCIENCES	3-Year Cycle Span: AY 2017/18 -2019/20

Student Learning Outcome Upon successful completion of the <u>Biology Program</u> , the student will:	LO 1 Describe the key concepts of biological and natural Sciences. Bloom: Know	LO 2 Perform a range of laboratory procedures that includes the latest in technological advances. Bloom: Apply	LO 3 Practice the processes of science including using the scientific method, conducting literature searches, and writing reviews on scientific topics. Bloom: Apply & Evaluate	LO 4 Demonstrate effective communication skills in both written and oral formats. Bloom: Apply	LO 5 Select appropriate test methods, and solve problems using critical thinking skills related to the life sciences. Bloom: Evaluate	LO 6 Demonstrate professional and ethical attitudes required of scientists including exploration of career opportunities and benefits of continuing education. Bloom: Apply & Evaluate
Core Learning Outcome(s):	Comprehension	Comprehension	Comprehension Communication	Communication	Comprehension	Conscience Contemplation
Related IDEA Objective(s)	BIO 107/117: 1 (E) BIO 330/340: 1 (E)	BIO 117: 4 (E) BIO 335: 4 (E)	BIO 216: 13 (E); BIO232: 9 (E); BIO 233: 13 (E); BIO 460: 9 (E) & 13 (E)	BIO330/340: 8 (E) BIO460: 8 (E)	BIO 335: 3 (E) ; 13 (E) BIO460: 3 (E) ; 13 (E)	INT 101: 4 (E); BIO 232/242: 4 (E); 10 (E); BIO490,491,492,493: 4 (E); 10 (E);: BIO 494/495: 4 (E); 10 (E)
Course Mapping:	Formative: BIO 107/117 Summative: BIO 330/340	Formative: BIO 117 Summative: BIO335	Formative: BIO216, BIO232, BIO233 Summative: BIO460	Formative: BIO330/340 Summative: BIO460	Formative: BIO 335 Summative: BIO460	Formative: INT 101 BIO 232/242 Summative: BIO490,491,492,493 BIO 494/495
Academic Year for Assessment:	AY 20/21	AY 20/21	AY 18/19	AY 18/19	AY 19/20	AY 19/20
Formative Assessment	<u>BIO 107/117: Foundation Exam</u> 50% of students will score 70% or higher on a test of basic cellular molecular concepts.	<u>BIO 117: Microscopic Skills</u> 70% of the students will score a 2 or higher on a Science Laboratory Rubric.	<u>BIO 216: EKG Experiment</u> 70% of the students will score a 2 or higher on the Problem Solving and Scientific Literacy Rubric Based on ACC&U VALUE Rubrics	<u>BIO 330: Oral Literature Review Power Point</u> 70% of the students will score a 70% or higher on the Power point oral presentation rubric <u>BIO 340: Final Laboratory Report:</u> 60% of students will	<u>BIO 335: Identification of Microorganisms using Unknown Specimens</u> 70% of the students will select the appropriate laboratory tests 70% of the time to correctly identify the microorganisms in unknown specimens.	<u>INT 101: Reflective Paper</u> 70% of the students will score a 2 or higher on the Reflection Rubric adapted from AAC&U Integrative Learning Value Rubric. <u>BIO 232/242: Service-Learning Project</u> 85% of the students will score a 3 or higher on the

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<p>Formative Assessment Continued</p>			<p>BIO 233: Oral Presentation of the Scientific Method 70% of the students will score a 1.5 or higher on the Analysis of One Experiment Rubric BIO232: Primary paper review 70% of the students will score an 70% or higher on the Mini Review of Primary Literature Paper Rubric</p>	<p>score a 70% or higher on the Laboratory Report Rubric.</p>		<p>Teamwork Value Rubric AAC&U.</p>
<p>Summative Assessment</p>	<p>BIO 330/340: Foundation Exam 80% of the students will score 70% or higher on a test of basic cellular molecular concepts.</p>	<p>BIO 335: Microscopic Skills 70% of the students will score a 3 or higher on a Science Laboratory Rubric</p>	<p>BIO 460: Research Poster 70% of the students will score a 3 or higher (by two fulltime faculty raters) on the BIO 460 Assessment Rubric BIO460: Literature Review Paper 70% of the students will score a 3 or higher (by two fulltime faculty raters) on the Literature Review Assessment Rubric.</p>	<p>BIO460: Oral Presentation of Three Primary Literature Articles 70% of the students will score a 3 or higher (by two fulltime faculty raters) on the Power point oral presentation rubric BIO460: Literature Review Paper 70% of students will score a 3 or higher (by two fulltime faculty reviewers) on the BIO460 Literature Review Rubric</p>	<p>BIO460: Experimental Project 80% of the students will score a 3 or higher on the Poster Assessment Rubric</p>	<p>BIO490,491,492,493: Transformation Paper 70% of the students will score a 3 or higher (by three fulltime faculty raters) on the Life Long Learning Rubric adapted from AAC&U Value Rubric Foundation and Skills for Lifelong Learning. BIO494/494: Transformation Paper 70% of the students will score a 3 or higher (by three fulltime faculty raters) on the Life Long Learning Rubric adapted from AAC&U Value Rubric Foundation and Skills for Lifelong Learning.</p>

<p>Student Learning Outcome Upon successful completion of the <u>Biology Program</u>, the student will:</p>	<p>LO 1 Describe the key concepts of biological and natural Sciences. Bloom: Know</p>	<p>LO 2 Perform a range of laboratory procedures that includes the latest in technological advances. Bloom: Apply</p>	<p>LO 3 Practice the processes of science including using the scientific method, conducting literature searches, and writing reviews on scientific topics. Bloom: Apply & Evaluate</p>	<p>LO 4 Demonstrate effective communication skills in both written and oral formats. Bloom: Apply</p>	<p>LO 5 Select appropriate test methods, and solve problems using critical thinking skills related to the life sciences. Bloom: Evaluate</p>	<p>LO 6 Demonstrate professional and ethical attitudes required of scientists including exploration of career opportunities and benefits of continuing education. Bloom: Apply & Evaluate</p>
<p>Indirect Evidence:</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm.</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm.</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm.</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm.</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm.</p>	<p>Student ratings on relevant objectives will be at or above the IDEA norm. <u>BIO490,491,492,493:</u> <u>Affiliate Student Evaluations</u> 85% of the students will score a 3 or higher on the Affiliate student evaluations. <u>BIO 494/495:</u> <u>Employer Internship Evaluations</u> 85% of the students will score a 4 or higher on the employer evaluations.</p>

BIOLOGY Program Course List and Corresponding Assessment

COURSES	FORMATIVE	SUMMATIVE	INDIRECT	LO
BIO 107 GENERAL BIO I	BIO 107/117: Foundation Exam	NA	IDEA	1
BIO 117	BIO 117: Foundation Exam BIO 117: Microscopic Skills	NA	IDEA	2
BIO 108 GENERAL BIO II	Foundation Exam	NA	IDEA	1
BIO 118	Comparative anatomy	NA	IDEA	2
BIO 112 MED TERM	Foundation Exam.	NA	IDEA	1
BIO 200 PATHOPHYSIOLOGY	Foundation Exam	NA	IDEA	1
BIO 210	Given 10 Cases	NA	IDEA	2
BIO 205 ANATOMY	Foundation Exam	NA	IDEA	1
BIO 215	practical examination of anatomical landmarks	NA	IDEA	2
BIO 206 PHYSIOLOGY	Foundation Exam	NA	IDEA	1
BIO 216	EKG Experiment	NA	IDEA	2, 3
BIO 232 GENETICS	Foundation Exam and Primary Paper Review	NA	IDEA	1, 3, 4, 6
BIO 242	Service Learning Project	NA	IDEA	2
BIO 233 ECOLOGY	Foundation Exam and Oral Presentation on the Scientific Method	NA	IDEA	1, 3
BIO 243	Oral presentation	NA	IDEA	2
BIO 234 PLANT	Foundation Exam	NA	IDEA	1
BIO 244	Science Laboratory	NA	IDEA	2
BIO 305 PARASITOLOGY/MYC	Foundation	NA	IDEA	1
BIO 315	Given several unknowns, students will correctly identify the unknowns 80% of the time.	NA	IDEA	2
BIO 323 IMMUNOLOGY	Foundation Exam	NA	IDEA	1, 3, 4
BIO 324	Given several unknowns students will correctly identify the unknowns	NA	IDEA	2
BIO 325 MICROBIOLOGY	Foundation Exam	NA	IDEA	1, 3, 4
BIO 335	BIO 335: Microscopic Skills BIO 335: Identification of Microorganisms using Unknown Specimens	NA	IDEA	2, 5

BIO 330 CELLULAR AND MOLECULAR	Oral Literature Review Power Point	NA	IDEA	1, 3, 4
BIO 340	Final Laboratory Report	NA	IDEA	2, 5
BIO 355 MOLE DX	NA	Power point oral presentation on a pathological problem.	IDEA	1, 5
BIO 365	NA	unknown samples or cases, students will correctly identify	IDEA	2 5
BIO 370 HEMOSTASIS AND FLUIDS	Foundation Exam	NA	IDEA	1, 4, 5
BIO 375	unknown samples	NA	IDEA	2 5
BIO 420 HEMATOLOGY	Foundation Exam	NA	IDEA	1, 3, 4, 5
BIO 425	Given red blood cell and white blood cell cases, identify the problem and select the appropriate tests to confirm the medical problem	NA	IDEA	2, 5
BIO 430 CLINICAL MICRO	Foundation Exam	NA	IDEA	1, 3, 4
BIO 435	unknown samples.	NA	IDEA	2 5
BIO 440 IMMUNOHEM	Foundation Exam	NA	IDEA	1, 4, 5
BIO 445	unknown samples	NA	IDEA	2, 5
BIO 446 ED, MANAGEMENT, LISS	NA	Given 10 unknown samples,	IDEA and Affiliate Student Evaluations.	1, 5, 6
BIO 450 CLINICAL BIOCHEM	Foundation Exam	NA	IDEA	1, 3, 4, 5
BIO 455	unknown samples	NA	IDEA	2,5
BIO 460 SENIOR CAPSTONE	NA	Literature Review Paper Oral Presentation of the Three Primary Literature Articles Experimental Project	IDEA	1 - 6
BIO 490 PRACTICUM CHEM	NA	Transformation Paper	IDEA and Affiliate Student Evaluations.	2, 5, 6
BIO 491 PRACTICUM IMMUNOHEM	NA	Transformation Paper	IDEA and Affiliate Student Evaluations	2, 5, 6
BIO 492 PRACTICUM HEM	NA	Transformation Paper	IDEA and Affiliate Student Evaluations.	2, 5, 6
BIO 493 PRACTICUM MICRO	NA	Transformation Paper	IDEA and Affiliate Student Evaluations.	2, 5, 6

BIO 494 INTERNSHIP	NA	Transformation.	IDEA and Affiliate Student Evaluations.	2, 5, 6
BIO 495	NA	Transformation Paper	IDEA and Affiliate Student Evaluations.	2, 5, 6
CHEM 107 CHEM I	Foundation Exam	NA	IDEA	1
CHEM 117	Science Laboratory	NA	IDEA	2
CHEM 108 CHEM II	Foundation Exam	NA	IDEA	1
CHEM 118	Science Laboratory	NA	IDEA	2
CHEM 211 ORGANIC I	Foundation Exam	NA	IDEA	1
	Science Laboratory	NA	IDEA	2
CHEM 212 ORGANIC II	Foundation Exam	NA	IDEA	1
CHEM 222	Science Laboratory	NA	IDEA	2
CHEM312 BIOCHEM	NA	Literature Review Power Point and Written Laboratory report or research review paper	IDEA	1
CHEM 322	NA	Written Laboratory report	IDEA	2
PHY 107 PHYSICS I	Foundation Exam	NA	IDEA	1
PHY 117	Science Laboratory	NA	IDEA	2
PHY 108 PHYSICS II	Foundation Exam	NA	IDEA	1
PHY 118	Science Laboratory	NA	IDEA	2