

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 -2020

Student Learning Outcome Upon successful completion of the <u>Biology</u> Program, 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 243: 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	BIO 107/117: Foundation Exam 50% of students will score 70% or higher on a test of basic cellular molecular concepts.	BIO 117: Microscopic Skills 70% of the students will score a 2 or higher on a Science Laboratory Rubric.	BIO 216: EKG Experiment 70% of the students will score a 2 or higher on the Problem Solving and Scientific Literacy Rubric Based on ACC&U VALUE Rubrics BIO 233: Oral presentation	BIO 330/340: Oral Literature Review Power Point and Written Laboratory report or research review paper: 70% of the students will score a 2 or higher on the Power point oral presentation rubric and	BIO 335: Identification of Microorganisms using Unknown Specimens 70% of the students will select the appropriate laboratory tests 70% of the time to correctly identify the microorganisms in unknown specimens.	INT 101: Reflective Paper 70% of the students will score a 2 or higher on the Reflection Rubric adapted from AAC&U Integrative Learning Value Rubric. BIO 232/242: Service Learning Project

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<p>Formative Assessment Continued</p>			<p>Of the scientific method 70% of the students will score a 2 or higher on the Problem Solving and Scientific Literacy Rubric Based on ACC&U VALUE Rubrics BIO232: Primary paper review 70% of the students will score a 2 or higher on the Bio 460 Assessment Rubric for literature review.</p>	<p>the Literature Review Assessment Rubric.</p>		<p>85% of the students will score a 3 or higher on the 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 three fulltime faculty raters) on the BIO 460 Assessment Rubric BIO460: Literature Review Paper 70% of the students will score a 3 or higher (by three fulltime faculty raters) on the Literature Review Assessment Rubric.</p>	<p>BIO460: Oral Presentation of the Short Paper and the written Literature Review. 70% of the students will score a 3 or higher (by three fulltime faculty raters) on the Power point oral presentation rubric and the Literature Review Assessment 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</u> Program, 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>IDEA: In courses where objectives are noted as Essential at least 70% of students will rate themselves as 3 or better.</p>	<p>IDEA: In courses where objectives are noted as Essential at least 70% of students will rate themselves as 3 or better.</p>	<p>IDEA: In courses where objectives are noted as Essential at least 70% of students will rate themselves as 3 or better.</p>	<p>IDEA: In courses where objectives are noted as Essential at least 70% of students will rate themselves as 3 or better.</p>	<p>IDEA: In courses where objectives are noted as Essential or Important, at least 70% of students will rate themselves as 3 or better.</p>	<p>IDEA: In courses where objectives are noted as Essential at least 70% of students will rate themselves as 3 or better. BIO490,491,492,493 Affiliate Student Evaluations. 85% of the students will score a 3 or higher on the Affiliate student evaluations. BIO 494/495 Employer Internship Evaluations 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
BIO112 MED TERM	Foundation Exam.	NA	IDEA	1
BIO200 PATHOPHYSIOLOGY	Foundation Exam	NA	IDEA	1
BIO210	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 BIO232: Primary paper review	NA	IDEA	1, 3, 4, 6
BIO 242	BIO 232/242: Service Learning Project	NA	IDEA	2
BIO 233 ECOLOGY	Foundation Exam; BIO 233: Oral presentation	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 rate themselves as making Moderate Progress or better	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 MOLE	NA	BIO 330/340: Oral Literature Review Power Point and Written Laboratory report or research review paper	IDEA	1, 3, 4
BIO 340	NA	BIO 330/340: Oral Literature Review Power Point and Written Laboratory report or research review paper	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	BIO460: Literature Review Paper Oral Presentation of the Short Paper and the written Literature Review. 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