WILLIAM WOODS
UNIVERSITY

Biology BA Annual Assessment 2022-2023

Contents

Clear	3.000 Exceeds	2.000 Meets	1.000 Falls Below Expectations	N/A
Mission Statement Clearly Articulated weight: 1.000	The mission statement for the program is insightful and forward thinking. It aligns with the University Mission and learning objectives showing a clear alignment between the University and the program.	✓ The mission statement for the program clearly articulated and aligned with the University mission.	The mission statement is minimal at best.	N/A
Comment:				
Reflection on Student Demographics, Retention, and Degree Completion Data weight: 1.000	The program provides a detailed description on the enrollment, retention, persistence and degree completion numbers. The program provides new ideas on how to improve retention of their program students or articulates what they are currently doing to keep students in their program.	✓ The program provides a basic reflection on enrollment, retention, persistence, and degree completion data provided.	The program does not reflect on enrollment, retention, persistence, and degree completion data in a detailed way.	N/A
Comment:				
Marketing Materials weight: 1.000	The program outlines the successes and needs in regards to marketing. Detailed suggestions on how to market the program and what niche areas that are program specific would benefit the marketing strategy.	✓ The program discussed the general marketing strategy for the program.	The program provided little to no discussion on the marketing materials or approach to how to market the program.	N/A
Comment:				
Alignment to University Objectives weight: 1.000	The program provides a detailed explanation of how program courses align to the Institutional Objectives. This explanation details specific courses, or activities that coordinate with the intent of the Institutional Objectives.	The program provides a basic explanation of how program courses align to the Institutional Objectives. This explanation provides a minimal understanding of how the program is aligned to the Institutional Objectives.	✓ The program provides little to no explanation of how program courses align to the Institutional Objectives.	N/A
Comment:				
General Education alignment clearly explained weight: 1.000	The program provides a detailed explanation of the General Education criterial and how the basic skills learned are expanded upon in the program. Details include but are not limited to: specific courses, or activities that stretch the knowledge of the specific areas.	✓ The program provides a basic explanation of the General Education curriculum and how the skills learned are expanded in program courses.	The program provides a minimal explanation of the General Education curriculum and how the skills learned are expanded in program courses.	N/A
Comment:				
NSSE Objectives weight: 1.000	The program provided a detailed listing of activities and assessments used within the program that focused on the identified NSSE objectives. The activities and assessments were divided out within the curriculum and impacted different cohort groups.	The program provided a basic explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	✓ The program provided minimal explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	N/A
Comment:				
Curriculum Map alignment and changes weight: 1.000	The curriculum map is detailed and complete. All Changs made to the curriculum map are detailed with supporting rationale for the decision..	✓ The curriculum map is complete. Changes made to the curriculum map are explained with some explanation as to why the changes were implemented.	The curriculum map is not complete and little to no explanation on curricular changes was provided.	N/A
Comment:				
Assessment Map weight: 1.000	Assessment of objectives are spread out across the curriculum with a variety of assessment measures and each program objective is assessed a minimum of twice a year.	✓ Each objective is assessed a minimum of 2 times a year or an assessment rotation is explained so that all objectives are assessed. The assessments are not concentrated in one class.	The assessment map is not complete or much of the assessment happens in only one course. Not all objectives are assessed annually, nor is a plan provided on assessment.	N/A
Comment:				

Annual Assessment 2022-2023

Biology BA

Program Profile

Program Mission Statement
Please insert your program mission statement here

A program designed to both educate students and prepare them for immediate careers in the biological sciences (especially those in ecology or conservation), or for acceptance into graduate programs.

Program Data

Delivery Method

Traditional On Campus (selected)

	Student Minors	Student Majors
2021-2022	6	14
2022-2023	6	16

Online
Hybrid

Concentrations 2022-2023
If your program contains concentrations, please list the concentrations and the number of students identified within each concentration.

N/A

Concentrations 2021-2022
If your program contains concentrations, please list the concentrations and the number of students identified with each concentration.

N/A

Student Demographics
What are the program goals for student retention, persistence, and degree completion? What do the persistence numbers mean to the faculty in the program? Are the persistence numbers what the program expected? If not, how could the numbers improve?

The Biology Department has a program goal of 75% retention between freshman and sophomores, a 90% persistence per year, and with a 100% completing the program that enter their senior year. By our program goal mentioned above, we would expect a graduation rate ~60%.
Our department's approach to the 75% retention is through multiple factors:

- As much interaction with the full-time biology faculty as possible through the freshman Biology Core courses (lecture and lab)
- Easy access to not only the Biology Faculty, but those teaching Chemistry, Math, and Physics

- Having an event sponsored by the department in early fall to help them generate a 4-year degree plan
- Specifically planned interactions with upper class majors
- Getting students involved in university Clubs

The retention data for the Biology BA degree plan shows that we had a retnetion rate of 100%, way above our benchmark as well as the retention rate for the University (71%). By our program goal mentioned above, we would then expect a graduation rate ~60%. The current data shows a graduation rate of 100% for new students who entered during 2015/2016, with a 0% graduation rate for those students that transferred during the same 2015/2016 academic year. Many transfer students are told they can finish their degree in one year, which is not the case since nearly all of our upper division Biology courses have General Biology II (BIO124/125) and General Chemistry II (CHM124/125). So completion of a Biology degree is at least a two year process, and if they transfer in January, that could mean 2.5 years.

While the Biology BA degree has low enrollment numbers, since the 2018/2019 academic year there is a trend consistent numbers of student enter as Biology BA and so the overall enrollment in the BA program has been growing. The Biology faculty feel more students are understanding the advantages and flexibility of the Biology BA program as well as having a slightly higher number of students interested in ecology/conservation. We do feel better marketing of this major would lead to an increase in the number of students in the program. Larger enrollment could also help with the retention number as students would be selecting that program and be more likely to stay enrolled and Biology BA majors.

Optimal Enrollment
Considering current human and physical resources, what is the optimal enrollment for the program?
25

Is the Program Externally Accredited

Yes
No (selected)

External Accreditation
Name the Accrediting Agency or entity including the last review/approval. Is there an accrediting body for the field of study? If yes, what is the name of the group. Is the program seeking accreditation? If no, why?

N/A

Admissions and Marketing Materials
Reflect on the current marketing materials used for the program. Please attach screen shots of the website or any material you are referencing in this section. What changes, if any, should be made to the material? Are there recommendations on how to modify the current material?

The Biology faculty helped marketing develop a new page sheet in 2018-2019 and we were sure to include the BA in the marketing sheet. With a change in the head of Marketing and the head of Admissions, the Biology faculty are optimistically hopeful about better marketing and enrollment in the BA program. We have previous indicated recruiting for the BA through conservation, wildlife, and hunting clubs, as well as through 4-H clubs and FFA chapters would be a plan of action for increasing interest in this Degree plan. We hope to met with the new Director of Admission and the new head of Marketing to ensure the BA Biology Degree is being recruited to it fullest.

Marketing Material

Program Assessment

Standard/Outcome

Identifier	Description
WWU2021.1	Knowledge and Scholarship: Demonstrate current knowledge and educational expertise in an academic or professional discipline engaging students in the process of academic discovery.

Additional Standards/Outcomes

Identifier	Description
BIO 2019.4	Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.
BIO.1	Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.
BIO.2	Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.
BIO.3	Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.
BIO.4	Information and Engergy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.

Alignment to the University Objectives
Please discuss the Program alignment to the University Objectives. Specific evidence is not to be uploaded, but discussion is expected of the assignment, and intentionality of how the objective is met with program curriculum.

WWU2016.1 Major Field Competence: Students will demonstrate excellence in an academic or professional discipline, and engage in the process of academic discovery.

Students are strongly encouraged to get shadowing hours and/or internships, as well as relevant professional jobs as well, during the school year, but primarily over the breaks. This is accomplished through formal and informal advising. The faculty all help with this process, as well as have classes specific to enable them to prepare for their future career (i.e. BIO 450).

WWU2016.2 Ethics: Students will exhibit values and behaviors that address self- respect and respect for others that will enable success and participation in the larger society.

Much of our curriculum includes writing scientific papers, which has an ethical culture to itself. Students learn how to appropriately use other people's work, while giving them credit, and not plagiarizing. Additionally we do lots of group-work in and outside of the labs and classes that ensure our students develop the skills to respectfully and successfully work with others.

WWU2016.3 Self-Liberation: Students will develop an honest understanding and appreciation of themselves and others resulting in an ability to make individual decisions.

Though we help students get and find internships, shadowing hours, and professional work, we do not hold their hand. They must do much of the work themselves, knowing they have us as support. This allows them to safely, and autonomously, make important career and life decisions, building their self-confidence and awareness that they can do it.

WWU2016.4 Lifelong Education: Students will possess an intellectual curiosity and desire for continual learning both within and beyond formal education in preparation for participation in a global society.

Our program has a strong push towards intellectual curiosity and continual learning that goes beyond information that should be learned for a test. From ethics discussions and having interesting speakers from a variety of biology backgrounds that our students are strongly encouraged to attend, to the self-designed experiments that are required in many of the biology courses (all biology students will have at least three major self-designed projects, many will have six) students have lots of opportunities to see how biology fits into the broader world. This preparation prepares our students to participate in the global society with an understanding that biology is relevant in today's world and impacts choices and policies. Furthermore, by experiencing a broad range of biological topics and having experiencing researching topics for themselves, students will be better able to understand how they can find information out for themselves and will have the tools needed to pursuing continual learning even after they graduate.

General Education Alignment to Program
How do the General Education criteria align with Program Objectives? What courses within the program build upon skills learned from general education courses (please list the program course and the general education criteria)? The General Education clusters are attached to the document below.

Critical Analysis: (9 credit hours) – Students apply logical and analytical reasoning skills to diverse source materials in the interest of discerning and debating aesthetic, thematic, and ethical content.

In all biology coursework, students are expected to integrate sound logical arguments with the scientific method. Students are expected to analyze and interpret general textbooks, primary scientific literature, and data. Throughout biology courses, students are expected to articulate the ethical interface of scientific practice and general societal issues, as well demonstrate integrity in their own scientific communications (oral and written).

Creative Expression: (12 credit hours) – Students develop the ability to express ideas and concepts, both logically and creatively, through written, oral, reflective, and aesthetic practices utilizing various media forms.

In all biology coursework, students are expected to demonstrate creative and independent generation of ideas based upon scientific parameters that they are presented, e.g. independently generating novel hypotheses regarding specific issues that they might be given. Students are expected to prepare and perform presentations on content-specific topics, in addition to extensive written technical papers and essays.

Quantitative Inquiry: (10 credit hours) – Students will develop and practice quantitative problem-solving skills in order to analyze and critically evaluate information in a larger context.

Quantitative inquiry is the foundation of the entire biology program. In all biology coursework students are expected to analyze data, evaluate it critically, and to be able to generate and interpret statistics. Math courses provide students with the quantitative background to perform these activities.

Society & the Individual: (12 credit hours) – Students integrate knowledge to articulate an understanding of diverse cultures, historical contexts, and human behaviors.

In all biology coursework students are expected to apply their knowledge of human behavior in the context of molecular to organismal processes (e.g. how the human body works and thinks) in addition to the formation of new scientific ideas. Students are expected to be able to articulate that there are variable correct interpretations of authoritative scientific principles and demonstrate competency with the historical development of scientific principles – that the natural process of scientific development involves building upon the ideas of scientific progenitors.

GE_Cluster_Descriptions_FINAL_Version_Approved.docx

NSSE Objectives Discussed Spring 2022

Program Alignment to NSSE Objectives
Faculty discussed the most recent NSSE results in spring of 2022 and identified universal objectives for all academic content. Please articulate what the program is doing to further students' knowledge and skills in the following areas: 1C- Explained course material to one or more students; 2E - Tried to better understand someone else's view by imagining how an issues looks from his/her perspective; 4C-Analyzing an idea, experience, or line of reasoning in depth by examining its parts; 4D- Evaluating a point of view, decision, or information source. Please describe the activities used and the impact on student learning.

Our program integrated the three NSSE objectives into individual courses at the discretion of the professor. Illustrative examples of these integrative activities and their assessments are included below. The Biology Faculty will have a discussion prior to the start of the Fall 2021 semester to determine if addressing these NSSE objectives will be best served by continuing to address these individually, or if a program-wide approach to these objectives would better meet the needs of the students.

1) integrate more interdisciplinary work within the curriculum

Dr. Kimberly Keller had a strong push for interdisciplinary work in her classes. Unfortunately, due to COVID, the annual project between her Genetics class (Bio 231/232) with Dr. Antje Heese (Associate Professor) from the Biochemistry Department at the University of Missouri to participating in their research by trying to identify a mutant in the plant, Arabidopsis thaliana, using PCR genotyping. The work is cross-disciplinary and real-life, both aspects that the students found meaningful. The students' work was assessed via lab-report (and questions on the lab exam). This activity is extremely successful both in students' perceptions, and in what they learned from the activities. Dr. Keller plans to re-instate this collaborative learning activity in the 2021-2022.

Similarly, in Dr. Keller's Microbiology class (BIO303/304), our students learn about the "One Health Initiative" through a collaborative lab with Dr. Paul Schiltz and the Equestrian Department learning to do fecal Egg counts on samples from the University equine herd. As above, the interdisciplinary work was exciting to the students who got to see how biology knowledge translates into health initiatives. Dr. Keller's Molecular Biotechnology (BIO414/415) also worked with Dr. Schiltz on a Platlet-Rich Plasma protocol comparison and our students also attempted to identify a antibiotic bacteria from wound on one of the horses that would not heal.

2) to connect learning to societal problems or issues

All of our biology classes connect with societal problems or issues—these range from environmental and conservation issues (strongly addressed in Environmental Science BIO 209, Ecology BIO 330/331) to human medical and ethical challenges (strongly addressed in Genetics BIO 231/232, Microbiology Bio 303/304, Human Anatomy and Physiology BIO 314/314, and Molecular Biotechnology BIO414/415).

While many of these issues are addressed as the naturally arise from the material being learned (e.g. the ethical implications of altering DNA, the role of antibiotic overuse contributing to "superbugs", the interactions of species on each others' survival) we did seek to explicitly connect learning to societal problems or issues.

3) to examine the strengths and weaknesses of their (students) own views on a topic or issue

All of the upper-level biology classes, and many of the lower-level ones, including Gen Bio 1 and Gen BIO 2 (BIO 114/115, BIO 124/125) include a research paper or project. These projects and/or papers are assessed part-way through the course, giving the students feedback on the strength of their mastery and understanding of the topic as well as providing them information about their weaknesses in the area. This method allows students to build on their strengths and address their weaknesses prior to completing their final projects.

This feedback is given by the instructor.

A new activity that directly examined students' own views on topics was done in Human Anatomy and Physiology 2 lab (BIO 324). The students had a whole lab period where they were given a list of anatomical misconceptions, and were required to find at least one that they thought was true, and figure out why it wasn't. Similarly, they needed to explain away at least one misconception that a lab-mate had, as well as explain the reason that certain misconceptions are so prevalent. This was assessed as a lab assignment and was successful as it had students evaluate their own assumptions and investigate the strengths and weaknesses of their ideas. In the future, we anticipate using this direct method of "examine the ideas you have and explain the common errors that are made in this area" could be a valuable teaching method in numerous biology courses.

Curriculum Map

A - Assessed
R - Reinforced
I - Introduced
M - Master

Biology BA Curriculum Map

	BIO 114	BIO 115	BIO 124	BIO 231	BIO 310	BIO 330	BIO 313	BIO 317	BIO 401	BIO 450
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	I	A	R	A, R	R	R	R	R	R	
BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.	I	A	R	R	R	R	R	R	M, A	
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	I, A	A	R	R	R	R	R	R	R	
BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.	I	A	R, A	R	R	R	R	R	M	

	CHM 114	CHM 124	CHM 314	MAT 124	MAT 304	Student Performance Review
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	I	R	R	R	R	A
BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.						A
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	I	R	R	R	R	A
BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.		R	R			A

Changes to Curriculum
Are there any changes made to the curriculum map for this academic year? If so, please describe the program changes made along with the rationale for why and the impact the change should have on student learning?

Slight changes were made to the curriculum map to align the curriculum map to our current concentration checklists; however, none of the changes to the curriculum map affected the Assessment Map.

Biology Faculty will have a discussion before the start of the Fall 2023 semester about Assessment and to determine if any of our required upper division courses should be used for Assessment

Assessment Findings

Assessment Findings for the Assessment Measure level for Biology BA Curriculum Map

Standard/Outcome
BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.

Assessment Measures

BIO 115				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Section: III There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		
Direct - External Testing	Has the criterion Major Field Test - Section: IV There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		

BIO 401				
Assessment	**Criterion**	**Summary**	**Attachments of**	**Improvement**

Measure			the Assessments	Narratives
Direct - Quiz/Exam	Has the criterion An assessment specific quiz (BIO401) will be used to ensure that assessment questions are direct and relevant to objective 1. The benchmark is 70% of the students at Proficient or better. Proficient is defined as 70% or better on the assessed questions. been met yet? Not met	Benchmark was Met as 67% of the students scored a 70% or higher on the Assessment Quiz. (n=15)	BIO401_01.docx	- : None needed - two individuals did not take the assessment quiz, so they score a 0% which affected results.

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Section: III Benchmark = Average score of 53 or higher on section, with 60% of students scoring a 46 or higher. been met yet? Not met	Neither Benchmark was Met. Only 25% of BA students scored a 46 or higher on MFT Section III, and the average score was only 50 (n= 4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing
Direct - External Testing	Has the criterion Major Field Test - Section: IV Benchmark = Average score of 53 or higher on section, with 60% of students scoring a 51 or higher. been met yet? Not met	Both Benchmarks were Not Met. Only 25% of BA students scored a 53 or higher on MFT Section III, and the average score was only 50 (n= 4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing

Standard/Outcome

BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.

Assessment Measures

BIO 114				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Quiz/Exam	Has the criterion Questions from the First lecture Exam (BIO114) that were relevant to objective 2 were selected for assessment. The benchmark is 70% of the	Benchmark was Met as 78% of the students were proficient or better (n = 63)	BIO114_Quiz_ Results.docx	

	students at Proficient or better. Proficient is defined as 70% or better on the assessed questions. been met yet? Met			

BIO 115				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Biology Major Field Test - Section: I There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		
Direct - External Testing	Has the criterion Major Field Test - Section: II There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		

Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Section: I Benchmark = Average score of 53 or higher on section, with 60% of students scoring at or above 51. been met yet? Not met	The Benchmark of the Average score of 53 or higher on section, was not Met as the average score was a 52%. However, the Benchmark of 60% of students scoring at or above 51 was Met as 75% of the students scored 51 or higher. (n=4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing
Direct - External Testing	Has the criterion Major Field Test - Section: II Benchmark = Average score of 53 or higher on section, with 60% of	Neither Benchmark was Met as the average score was only 48 while only 25% students scored at or above 51. (n = 4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark

	students scoring at or above 51. been met yet? Not met			requires changing

Standard/Outcome

BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.

Assessment Measures

BIO 115				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Biology Major Field Test - Section: I There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		
Direct - External Testing	Has the criterion Major Field Test - Section: II There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		
Direct - External Testing	Has the criterion Major Field Test - Section: III There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine “knowledge gained” from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet?	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		

	Met			

BIO 124				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Quiz/Exam	Has the criterion An assessment specific quiz (BIO124) will be used to ensure that assessment questions are direct and relevant to objective 3. The benchmark is 70% of the students at Proficient or better. Proficient is defined as 70% or better on the assessed questions. been met yet? Not met	Benchmark was Not Met as 0nly 62% of the students received a Proficient (70%) or higher on the Assessment Quiz (n=42)	BIO124_01.docx	- Curriculum Revision: Quizzes have been on-line and will be going back to in-class quizzes

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Section: I Benchmark = Average score of 53 or higher on section, with 60% of students scoring at or above 51. been met yet? Not met	One Benchmark was Met and one Benchmark was Not Met The Benchmark of the average score of 53 or higher on section, was Not Met as the average score was only a 52. However, the Benchmark of 60% of students scoring at or above 51 was Met as 75% of the students scored 51 or higher. (n=4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing
Direct - External Testing	Has the criterion Major Field Test - Section: II Benchmark = Average score of 53 or higher on section, with 60% of students scoring at or above 51. been met yet? Not met	Neither Benchmark was Met as the average score was only 48 while only 25% students scored at or above 51. (n = 4)		- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing
Direct - External Testing	Has the criterion Major Field Test - Section: III Benchmark = Average score of 53 or higher on section, with 60% of students scoring at or above 46. been met yet? Not met	Neither Benchmark was Met. Only 25% of BA students scored a 46 or higher on MFT Section III, and the average score was only 50 (n= 4)		
Direct - Research Paper	Has the criterion On Assessment Day, students will be emailed a peer-reviewed journal article about research in the field of	Look at several years of data and determine if Benchmark requires changing		

	Microbiology. Students will be asked specific questions regarding the analysis of the figures and data from the article and given 2 hours to complete the assignment. Benchmark: 70% of students scoring an average of 70% or higher on analysis questions. been met yet? Not met			

Standard/Outcome
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.

Assessment Measures

BIO 115				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Percentile Rank (This scores students in all 4 sections of the MFT) There is no score Benchmark = this test is given to our incoming Biology majors to determine the baseline for each student for the exam. Biology Majors will retake the Major Field Test exam as exiting seniors and scores will be compared in order to determine "knowledge gained" from completion of the program. Benchmark = 100% of the declared Biology Majors will take the exam (those declared at the time of test administration). been met yet? Met	Benchmark of 100% of declared Biology Majors taking the exam was met. (n=30)		

BIO 231				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Quiz/Exam	Has the criterion An assessment specific quiz (BIO231) will be used to ensure that assessment questions are direct and relevant to objective 4. The benchmark is 70% of the students at Proficient or better. Proficient is defined as 70% or better on the assessed questions. been met yet? Met	Benchmark was Met as 87% of the students scored a 70% or higher on the Assessment Quiz. (n=15)	Scores___Genetics_ Assessment_Quiz.docx	

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	Has the criterion Major Field Test - Percentile Rank (This scores students in all 4 sections of the MFT) Benchmark = 50% of students scoring in the 50th percentile or higher. been met yet? Not met	Only 25% (1 student) in the BA program score in the 50th percentile (n = 4)	2023_MFT_Data_and_ Comparison_for_Knowledge _Gained_REPORT_Version.xlsx	- Revise Program Benchmark: Look at several years of data and determine if Benchmark requires changing
Direct - External Testing	Has the criterion Major Field Test - Percentile Rank (This scores students in all 4 sections of the MFT) Benchmark = 100% of our students will show an increase in their over Percentile Rank when we compare their MFT Percentile Rank as an Incoming Biology Major to their MFT Percentile Rank taken as a graduating Senior been met yet? Met	100% of the students in the BA program increased their MFT Percentile Rank based on comparison with their MFT Percentile Rank as an incoming Biology Major. (n=4)		
Direct - Research Paper	Has the criterion On the day of assessment, students will be emailed a peer-reviewed journal research article in the field of Molecular Structure. On Assessment Day, students will be asked to analyze the article by answering questions about the article and data. Students will have a minimum of two hours to complete the assignment. Benchmark: 70% of students scoring 70% or higher on the article analysis questions. been met yet?	Met as 100% of BA students scored a 70% or higher on the analysis questions. (n=3)	Tweener_Student_Article _Review_Scores_for_AIS_ Report.pdf	

	Met			

Analysis of the Assessment Process

Describe your assessment process; clearly articulate how the program uses coursework and or Student Performance Review for program wide assessment. Note any changes that occurred to the process since the previous year. Discuss what activities were successful and which ones were not as helpful and why. Please include who met to discuss the changes (unless you are a program of one person) and when you met. – Include a discussion on the process for collection and analysis of program data.

For the Biology BA Program Assessment, we use a mixture of Biology courses in our Core Curriculum, the ETS Biology Major Field Test, and Scientific Journal Analysis to assess our Biology BA students. The Biology Faculty are overall quite satisfied with how we assess the Curriculum, and besides a few minor changes to curriculum and/or Benchmark adjustments, we plan to make no change to our overall assessment plan.

We consider our four core Biology Courses to be BIO114/115 & BIO124/125 (Biology for Majors I & II), BIO231/232 (Genetics), and BIO401 (Evolution). BIO114, BIO124, and BIO231 are the first three Biology courses every Biology major (BA or BS) is required to take and then BIO401 is our required Senior capstone course. All four courses use either a Biology Objective specific quiz or exam questions to assess the students in the course. Three of the four course assessments were met this academic year; where only BIO124 did not meet the 70% of students scoring a 70% or higher on the assessment questions. The last couple years of quizzes questions were taken online; however, the assessment quiz was taken in person. Dr. Hirsch-Jacobson has decided all quizzes will be given in person for the next year to reinforce the concepts for longer-term retention.

During the Student Performance Review (SPR) day, our Seniors take the ETS Biology Major Field Test which allows us to compare the knowledge base of our seniors compared to the other students nationally. For the BS program, only 4% of the students did not meet scoring in the 50th percentile or higher (n=4). In addition, nine of our graduating students also took the exam as an incoming Freshman, so we were able to assess the "knowledge-gained" from the program. While our students did not meet several of the benchmarks that we had set in terms of the Average for a section subscore and a certain % of the students obtaining a certain section score as a Senior, we did see significant increases in "knowledge-gained" from the program. In terms of "knowledge-gained", 100% of the BS Seniors had an increase in their Percentile Rank from their Freshman; but 70 % of these students had a % change of >113%. (n=4). In the four sections subscores, 100% of our BS Seniors showed an overall increase in the average of their four section subscores from their Freshman to Senior year. In addition., 75% of the students had an increase in all 4 of the section subscore sections. Overall, the increase in scores from their Freshman to Senior year on a standardized exam, the Biology faculty feel our Biology curriculum is strong and students are able to increase their "knowledge gained" quite significantly.

For Section I (Cell Biology) the BA students just missed the Benchmark average of 53 as their average was 52; however, they did meet the second benchmark as 75% scored a 51 or higher n=4). For Section II (Molecular Biology and Genetics), Section III (Organismal Biology), and Section IV (Population Biology, Evolution and Ecology), the benchmarks for both the average score and the student's individual subscores were not met. While the scores of the BA Seniors mostly showed improvement from their freshman year, compared to other Biology students nationally, our students did not meet several of our benchmarks. Therefore, the Biology faculty need to look at several years of data and possibly re-adjust our benchmarks.

The Biology faculty attempt to meet weekly throughout the semester, and we will use one of our first meetings in the fall of 2023 to look at our MFT data from the last three to four years and make adjustments to the Benchmark in regards to all four sections and the overall percentile rank as we feel is needed. But as mentioned above, Biology faculty feel we have a strong and competitive curriculum and our students increase their "knowledge gained" scores quite significantly. In addition, the Biology faculty share responsibility in terms of collecting course data, rotating the Research assignment for our Tweeners, and getting a Speaker to give a Research talk at SPR days. The Biology faculty truly work as a cohesive unit to provide support to all of our Biology majors, enthusiastically teach our areas of expertise, and all want our Biology Majors to be successful – and we feel the results in this Assessment Report speak to the fact we are creating an environment conducive to learning.

Improvement Narrative List

Assessment Findings for the Assessment Measure level

Standard/Outcome BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.	
Legend	A
Course/Event	BIO 124
Assessment Measure	Direct - Quiz/Exam
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Curriculum Revision	Quizzes have been on-line and will be going back to in-class quizzes

Standard/Outcome BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.	
Legend	A
Course/Event	BIO 401
Assessment Measure	Direct - Quiz/Exam
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
	None needed - two individuals did not take the assessment quiz, so they score a 0% which affected results.

Standard/Outcome BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	
Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.	
Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome BIO.1 Evolution: Articulate knowledge that life evolved over time via mechanisms of mutation, natural selection, and genetic drift, and that there is concrete evidence for this fundamental concept _ evolution from common ancestry _ in the unity of numerous biological processes among species.	
Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	
Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome

BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.

Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome

BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.

Legend	A
Course/Event	Student Performance Review
Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Standard/Outcome

BIO.3 Diversity in structures, functions, and systems: Demonstrate and model, through reductionist and holistic approaches, the interconnectedness of life along a continuum from molecular structures to interactions among organisms and with ecosystems.

Legend	A
Course/Event	Student Performance Review

Assessment Measure	Direct - External Testing
Assessment Findings	Not met

Improvement Narrative

Improvement Type	Summary
Revise Program Benchmark	Look at several years of data and determine if Benchmark requires changing

Program Activities

Student Performance Review

Describe the department Student Performance Review activities if not already articulated. Please describe the nature of the assessments conducted as well as the process of assessment happening on these two days. Include the schedule of assessment day for your program. What does the data and outcomes tell you? What changes will you make as a result of the data? What areas are successful for the program?

Student Performance Review (SPR) day was a single day as the other is being used for a full day of Senior projects the "Symposium on Research, Scholarship, and Creativity. Our Student Performance Schedule include the following events: (1) Biology MFT for our Graduating Seniors, (2) Figure Analysis of Research Article for our second- and third-year Biology Majors ("tweeners"), (3) a survey of students self-reporting their Shadowing experiences (Summer 2022, Winter Break, plan for Summer 2023), as well as a survey our Graduating Senior students, (4) a Research Talk followed by a Meet & Greet Session, and (5) an "Impartation of Wisdom" luncheon with our new/incoming majors and our graduating seniors.

We always use the SPR Days to have our senior students take the Major Field Test (MFT) in Biology. Fourteen Biology Seniors (4 BA and 10 BS Majors) took the MFT in February. The Biology Faculty are considering changing some of our benchmark from the "average score" to the median score" to help eliminate some of the issues when a single student in the cohort does poorly on the MFT.

This academic year, we were again able to administer the MFT to the incoming class of Biology Majors in the fall by doing it the second week of classes in the fall semester in BIO115, the laboratory associated with BIO114. This change was made in order to truly capture the entry level knowledge base of each of our incoming students majoring in Biology.

Of our 14 Biology graduating senior students who took the MFT this February, 13 also took the MFT their first year in the program (9/10 BS students and 4/4 BA students). For those nine students, we were able to determine "knowledge gained" while attending WWU. This is the second academic year of a large amount of entering MFT data and exiting MFT data of our seniors, therefore our current Benchmark is only 100% of the students will show a gain in knowledge between the two exams - and we achieved that benchmark. After three to four years of data, the biology faculty will determine what Benchmarks we want to use for this "knowledge-gained" portion of our assessment. This data will be a valuable assessment in addition to our current use of the MFT to evaluate the knowledge of our exiting seniors compared to other Biology majors on a national level. Since the data generated in BIO115 is being used simply as an entry-level baseline there is no specific benchmark for the scores on this exam, "Met" simply implies all students declared as majors at that time took the MFT.

The second- and third-year Biology Majors ("tweeners") students are required to complete a Data Analysis Assessment activity. This is the third year using a Data Analysis Assessment activity, and the Biology Faculty **again** redesigned this portion of the University's Student Performance Review. This year we provided our students with a single, peer-reviewed journal article. These students were given two hours and asked to read that journal articles and answer the subset of specific questions regarding the figures and the data for each article. The faculty wrote questions for the article. This change will provide us the ability to truly assess each student's ability to read, comprehend, and analyze data and to be able to assess each student on a more equal level. This assessment activity was currently assessed in Objective 3; however, we feel it is better to move the assessment to Objective 5 in order to widen the content area of the journal

articles we can use for this assessment. We know we need to refine our assessment tools to help ensure our students are assessed on a more individual level.

This is the second year we decided to have everyone except our graduating students (first – third years) complete a short survey self-reporting focusing on their Shadowing experiences for the previous summer (Summer 2022), the Academic Year/Winter Break, and plans they are working on for Summer (2023). For graduating students, we had a separate survey regarding their Shadowing experiences for the previous summer (Summer 2022) and the Academic Year/Winter Break. This survey focused more on what degree/career path they started with and what degree/career path they are as they graduate. In addition, we tried to gain some insight into their future plans.

Every year during Student Performance Days we bring a speaker who gives research-based talk to the entire department and all of our Biology Majors. Fortunately, we were able to hold the research talk in person in the Library Auditorium on campus. The Speaker was John George, a Wildlife Biologist at Missouri Department of Conservation. With a talk about "Conservation and Restoration in Missouri." The faculty were excited about the amount of questions and engagement by our students and we were able to hold an in-person Meet & Greet/Question & Answer reception after the seminar for students to interact with the speaker. We feel it is extremely valuable for our students to witness such talks and we attempt to alternate the area of research presented each year in order to expose our students to the variety of sub-disciplines within Biology during their 4-years here at William Woods. Our students continually provide positive feedback about the speakers and it is common to hear them discussing the talk amongst themselves for the next several days. Therefore, this event is definitely something we will continue to incorporate that into our Student Performance Day schedule.

Our "Impartation of Wisdom" lunch event for just our new/incoming students and our outgoing graduating seniors was successful. The Biology Faculty gave the "new" students a set of questions as a conversation starter and we definitely feel this helped make it a very successful event as you could hear the buzz of conversation down the hall. While this event is not necessary for any assessment, however, this is definitely important in the retention of our students and we will definitely have this event each year.

Overall, we are very pleased with our Student Performance Days and feel we have a schedule that allows us to assess our students in a variety of manners, and the small changes mentioned above will only serve to better our assessment efforts of the Biology Program.

Student Performance Review Schedule
Upload the program schedule for students during Performance Reviews.
Biology_Department_SPR_Day_Schedule___Spring_2023.pdf

Senior Showcase/Symposium
Describe program activities used to highlight Senior achievement. What benefit does the program gain from the activities? What if any assessment of students happens during this event?

The primary activity that showcases student achievement is that our graduating seniors present a poster during the Symposium for Research, Scholarship, and Creativity. They do most of the work on their poster during BIO 450, Biology Practicum, the previous Spring semester. This year, however, a subset of the students put additional hours of their own time into conducting original research. I believe this was a significant improvement, and moving forward this will be required of our seniors.

The program gains several benefits from this activity.

- Students get to experience a poster session. This is a multidisciplinary event with around 80 posters and is also a LEAD event. The atmosphere is fantastic for our students.
- Students design and present their poster giving them the ability to learn how to communicate science from start to finish.
- They present to other students and faculty, so they must be able to answer a range of questions from basic to complex.

The assessment is done in conjunction with BIO 450, Biology Practicum, and BIO 401, Evolution. BIO 450 assesses their poster to about midway for those who do their own research whereas BIO 401 assesses how their finished product looks, and how well they presented it. Starting next year, BIO 401 will also need to assess the quality of their independent research, data collection, and data analysis. We had 13 Biology Majors present at this event.

Tools used for Assessment
Upload rubrics or other Assessment based tools used by the program that are important to the assessment process.

Service Learning
Does the Program include projects/ course content that uses the philosophy of service learning?
Yes
No (selected)

Service Learning Component
If so, how is service learning infused in the coursework within your department? Is service or community engagement in the program mission? Describe the Service Learning Activities that your students and department engaged in this past year. How did the activities improve student learning? How did the activities benefit the community?

Co-Curriculuar and LEAD Events
Describe Co-Curricular and LEAD events sponsored by program faculty. This includes LEAD and other events meant to engage students and foster learning outside of the classroom.

Dr. Sarah Greenland-White held 3 LEAD Events:

Thursday, November 17, 2022 12:00:00 PM - "By Hand": A History of Chiropractic Medicine - Doctors of Chiropractic (DC) are holistic physicians that utilize manual therapies to address pain and dysfunction. This presentation by Zach Becker of Logan University will discuss the history of the profession and explore its future.

Saturday, November 19, 2022 6:30:00 PM - Conservation Trivia - Come join conservation club for a fun trivia night before finals and test your knowledge about conservation Prizes will be given to 1st, 2nd, and 3rd placed winners.

Monday, February 20, 2023 12:00:00 PM - Pharmacy Careers: A Prescription for Success - Professor Tricia Berry of St. Louis College of Pharmacy will speak on pharmacy careers. She will present about pharmacy as a profession, as well as the program available through St. Louis College of Pharmacy.

Student Accomplishments
Highlight special examples of student successes in the field (academic: mentor-mentee, conference presentations, competitive internship, journal acceptance; extra-curricular: horse show championship, art exhibit). This is for any accomplishment a student achieved outside of course work or the normal expectation of student success.

Alumni Accomplishments
Please highlight special examples of any successes of recently graduated alumni (acceptance or graduation graduate school, employment or professional milestones).

Faculty Accomplishments
Highlight special examples of faculty success in the profession/field/content area. This is for any accomplishment of a faculty member that is research or professional in nature.

Dr. Kimberly L. Keller and Dr. Robin Hirsch-Jacobsob were both promoted to the rank of Professor.

Assessment Rubric:

Clear	3.000 Exceeds	2.000 Meets	1.000 Falls Below Expectations	N/A
Mission Statement Clearly Articulated weight: 1.000	The mission statement for the program is insightful and forward thinking. It aligns with the University Mission and learning objectives showing a clear alignment between the University and the program.	✓ The mission statement for the program clearly articulated and aligned with the University mission.	The mission statement is minimal at best.	N/A
Comment:				
Reflection on Student Demographics, Retention, and Degree Completion Data weight: 1.000	The program provides a detailed description on the enrollment, retention, persistence and degree completion numbers. The program provides new ideas on how to improve retention of their program students or articulates what they are currently doing to keep students in their program.	✓ The program provides a basic reflection on enrollment, retention, persistence, and degree completion data provided.	The program does not reflect on enrollment, retention, persistence, and degree completion data in a detailed way.	N/A
Comment:				
Marketing Materials weight: 1.000	The program outlines the successes and needs in regards to marketing. Detailed suggestions on how to market the program and what niche areas that are program specific would benefit the marketing strategy.	✓ The program discussed the general marketing strategy for the program.	The program provided little to no discussion on the marketing materials or approach to how to market the program.	N/A
Comment:				
Alignment to University Objectives weight: 1.000	The program provides a detailed explanation of how program courses align to the Institutional Objectives. This explanation details specific courses, or activities that coordinate with the intent of the Institutional Objectives.	The program provides a basic explanation of how program courses align to the Institutional Objectives. This explanation provides a minimal understanding of how the program is aligned to the Institutional Objectives.	✓ The program provides little to no explanation of how program courses align to the Institutional Objectives.	N/A
Comment:				
General Education alignment clearly explained weight: 1.000	The program provides a detailed explanation of the General Education criterial and how the basic skills learned are expanded upon in the program. Details include but are not limited to: specific courses, or activities that stretch the knowledge of the specific areas.	✓ The program provides a basic explanation of the General Education curriculum and how the skills learned are expanded in program courses.	The program provides a minimal explanation of the General Education curriculum and how the skills learned are expanded in program courses.	N/A
Comment:				
NSSE Objectives weight: 1.000	The program provided a detailed listing of activities and assessments used within the program that focused on the identified NSSE objectives. The activities and assessments were divided out within the curriculum and impacted different cohort groups.	The program provided a basic explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	✓ The program provided minimal explanation of the activities and assessments used within the program that focused on the identified NSSE objectives.	N/A
Comment:				
Curriculum Map alignment and changes weight: 1.000	The curriculum map is detailed and complete. All Changs made to the curriculum map are detailed with supporting rationale for the decision..	✓ The curriculum map is complete. Changes made to the curriculum map are explained with some explanation as to why the changes were implemented.	The curriculum map is not complete and little to no explanation on curricular changes was provided.	N/A
Comment:				
Assessment Map weight: 1.000	Assessment of objectives are spread out across the curriculum with a variety of assessment measures and each program objective is assessed a minimum of twice a year.	✓ Each objective is assessed a minimum of 2 times a year or an assessment rotation is explained so that all objectives are assessed. The assessments are not concentrated in one class.	The assessment map is not complete or much of the assessment happens in only one course. Not all objectives are assessed annually, nor is a plan provided on assessment.	N/A
Comment:				

Data Driven Decision-making is explained weight: 1.000	An overview of program assessment is provided with details on the specific successes and challenges from the year. A detailed review of how assessment was administered over the academic year is clearly outlined.	A basic overview of program assessment is provided with some details on the successes and challenges from the year. A basic review of how assessment was administered over the academic year is outlined.	A basic overview of program assessment is not provided with little to no discussion on the administration of assessment over the academic year.	N/A
Comment:				
Documentation provided on assessment findings weight: 1.000	The program uploads all rubric and support information to support the claims in the assessment findings along with detailed instructions on the assessment process and data analysis.	The program uploads all rubric and support information to support the claims in assessment findings.	The program did not upload the data to support assessment claims in the assessment findings.	N/A
Comment:				
Analysis of Assessment weight: 1.000	The program completed assessment findings for each component identified, and provided a comprehensive summary of each assessment measure identified in the report.	The program completed the assessment findings for each component and provided a summary for each assessment measure.	The program did not provide a completed assessment findings for each component, nor did they complete the summary for each measure.	N/A
Comment:				
Improvement narratives are selected with intentionality weight: 1.000	The program identified Improvement Narratives that appear to move the program forward and see the bigger picture than only the specific program curriculum options	The program used the provided Improvement Narratives and selected options that made sense to the objectives and issues within the assessment.	The program did not use any improvement narratives, or the ones chosen are not aligned with assessment results.	N/A
Comment:				
Student Performance Review weight: 1.000	The program described and provided a detailed account of Student performance Review activities. Data evidence provided and detailed.	The program provided the schedule and a brief description of Student Performance Review with data of the results.	The program did not provide complete explanation on Student Performance Review nor did they provide data results.	N/A
Comment:				
Senior Showcase weight: 1.000	The program had all senior students participate in Senior Showcase and provided a detailed explanation of their expectation and the presentations presented.	The program described the Senior showcase activities and provided some evidence of what was presented.	Little to no content of Senior showcase was provided.	N/A
Comment:				
Co Curricular and LEAD activities weight: 1.000	The program detailed the activities of LEAD and other co-curricular programing that was provided throughout the year. They provided numerous events for students.	The program provided a listing of LEAD events and activities provided.	The program provided little to no description of the Co-curricular activities provided throughout the year.	N/A
Comment:				
Faculty, alumni, and Student accomplishments weight: 1.000	The program provided detail updates on successes on Students, Alumni and Faculty with added information explaining the kinds of success that were experienced.	The program provided a listing of information on Students, Alumni, and faculty accomplishments.	The program provided little to no data on students, alumni, faculty accomplishments.	N/A
Comment:				

Appendix: Supplemental Data

Student ID	Correct	Percent
1	7/7	100%
2	7/7	100%
3	7/7	100%
4	7/7	100%
5	7/7	100%
6	7/7	100%
7	7/7	100%
8	7/7	100%
9	7/7	100%
10	7/7	100%
11	7/7	100%
12	7/7	100%
13	6/7	86%
14	6/7	86%
15	6/7	86%
16	6/7	86%
17	6/7	86%
18	6/7	86%
19	6/7	86%
20	6/7	86%
21	6/7	86%
22	6/7	86%
23	6/7	86%
24	6/7	86%
25	6/7	86%
26	6/7	86%
27	6/7	86%
28	6/7	86%
29	6/7	86%
30	6/7	86%
31	6/7	86%
32	6/7	86%
33	6/7	86%
34	6/7	86%
35	5/7	71%

Student ID	Correct	Percent
36	5/7	71%
37	5/7	71%
38	5/7	71%
39	5/7	71%
40	5/7	71%
41	5/7	71%
42	5/7	71%
43	5/7	71%
44	5/7	71%
45	5/7	71%
46	5/7	71%
47	5/7	71%
48	5/7	71%
49	5/7	71%
50	4/7	57%
51	4/7	57%
52	4/7	57%
53	4/7	57%
54	4/7	57%
55	4/7	57%
56	4/7	57%
57	4/7	57%
58	4/7	57%
59	4/7	57%
60	4/7	57%
61	3/7	43%
62	3/7	43%
63	2/7	29%

BIO124 Biology for Majors II – Spring 2023 Assessment results

BIO124 01

Student	Score (%)
A	100
B	100
C	80
D	40
E	80
F	100
G	60
H	80
I	80
J	80
K	40
L	100
M	80
N	60
O	60
P	40
Q	80
R	100
S	80
T	60
U	60
V	80
W	80
X	80
Y	80
Z	60

MET 17 of 26

BIO124 02

Student	Score (%)
A	80
B	80
C	80
D	20
E	60
F	100
G	80
H	6
I	80
J	40
K	60
L	40
M	40
N	80
O	80
P	0
Q	80

MET 9 of 17

Course: NOT MET as only 60% (26 of 43) Scored a 70% or Higher

BIO401 01

Student	Score (%)
A	95
B	65
C	70
D	75
E	70
F	65
G	85
H	100
I	85
J	85
K	50
L	100
M	0
N	90
O	0

Results of Genetics Assessment Quiz – Fall 2022

Student	Correct out of 20	Percentage
1	11	55
2	14.5	72.5
3	14	70
4	13	65
5	16	79
6	17	85
7	18	90
8	16	80
9	17	85
10	17.5	87.5
11	16	80
12	18	90
13	18.5	92.5
14	17.75	89
15	17.5	87.5
Averages	**16.12**	**80.53**
Scores	**Number of Scores**	**Percentage**
90 – 100	3	20%
80 – 89	7	47%
70 – 79	3	20%
60 – 69	1	6.5%
50 – 59	1	6.5%

Biology Department SPR Day – Spring 2023
February 22nd

Time	Group	Event	Room	Faculty in Charge
10:00am – 12:00pm	**Graduating Seniors - Required**	Biology Major Field Test	TBD	Dr. Robin Hirsch-Jacobson
10:00 – 2:30pm	**ALL Biology Majors - Required**	On-line Survey about Shadowing *Seniors don't leave MFT until they do it*	Online – check email	Dr. Kimberly Keller
10:00am – 12:00pm	**2nd and 3rd years - Required**	Journal Article Review/Data Interpretation/ Figure Analysis **Bring Laptop Computers**	Cox209	Dr. Kimberly Keller
12:30 – 1:30pm	**Graduating Seniors & First -years Required**	Impartation of Wisdom Lunch	Cox 300	Dr. Sarah Greenland-White
1:30 – 2:00pm	**First years-Required**	Advice I wish someone had told me when I was a 1st year	Cox 300	Dr. Kimberly Keller
6:00 – 7:00pm	**All Biology Majors-Required**	John George- Conservation and Restoration in Missouri	Dulany Library Auditorium	Dr. Robin Hirsch-Jacobson
7:00 – 8:00pm	**Everybody is invited- Not Required**	Meet and Greet with the speaker	COX 300	Dr. Robin Hirsch-Jacobson

Graduating Seniors = Graduating Biology majors who are currently enrolled in BIO401 (Evolution)

2nd and 3rd years = Biology students who have completed BIO231/ 2332 (Genetics) but are **NOT** enrolled in BIO401 (Evolution)

First years = Incoming majors whose Biology courses this academic year have been the Biology for Majors I and II series (BIO114/115 & BIO124/125) and these students have **NOT** taken BIO231/232 (Genetics)

Student	Points Missed per question (Each question is worth 5 points)						Points Missed	Score out of 30 pts	Percentage
	Q1	Q2	Q3	Q4	Q5	Q6			
1	1	0	0	2	2	0	5	25	83
2	2	0	1	2	0	1	6	24	80
3	0	2	2	0	0	0	4	26	87
4	0	0	0	0	0	0	0	30	100
5	1	0	1	0	0	1	3	27	90
6	1	0	1	1	0	0	3	27	90
7	1	1	0	0	0	1	3	27	90
8	0	3	1	2	0	0	6	24	80
9	1	3	1	2	0	1	8	22	73
10	2	2	2	1	0	2	9	21	70
11	2	0	0	1	0	0	3	27	90
12	1	3	2	2	0	1	9	21	70
13	2	1	0	0	5	2	10	20	67
14	2	2	1	0	2	0	7	23	77
15	1	0	0	1	0	0	2	28	93
16	2	2	1	0	0	2	7	23	77
17	3	3	3	1	0	1	11	19	63
Average:	**1**	**1**	**1**	**1**	**1**	**1**	**6**	**24**	**81**

Green = Biology BA Student

Orange = Biology BS Student

2023 Senior Cohort - BS BIO			Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
	Student Names	Total score (Range is 120-200)	Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2023	Raw score Section 1 previous	% change	Raw score Section 2 2023	Raw score Section 2 previous	% change	Raw score Section 3 2023	Raw score Section 3 previous	% change	Raw score Section 4 2023	Raw score Section 4 previous	% change
1		163	**79**	32	47	147	57	47	21.3	60	31	93.5	60	48	25.0	67	52	28.8
2		178	**98**	82	16	20	70	65	7.7	81	55	47.3	69	69	0.0	77	67	14.9
3		136	**11**	3	8	267	38	27	40.7	47	50	-6.0	29	32	-9.4	38	20	90.0
4		130	**4**	1	3	300	31	27	14.8	47	31	51.6	32	35	-8.6	22	20	10.0
5		156	**62**	8	54	675	54	35	54.3	44	38	15.8	56	39	43.6	63	36	75.0
6		147	**36**	8	28	350	38	27	40.7	47	41	14.6	48	29	65.5	54	48	12.5
7		142	**23**	3	20	667	38	35	8.6	38	31	22.6	46	32	43.8	48	31	54.8
8		135	**10**	7	3	43	23	42	-45.2	44	23	91.3	27	42	-35.7	50	36	38.9
9		142	**23**	1	22	2200	35	45	-22.2	41	31	32.3	46	24	91.7	48	22	118.2
		148	38	16	22	519	43	39	13	50	37	40	46	39	24	52	37	49

I		II		III		IV	
70		81		69		77	
57	**33%**	60	**22%**	60	**67%**	67	**44%**
54		47		56		63	
38		47		48		54	
38		47		46		50	
38		44		46		48	
35		44		32		48	
31		41		29		38	
23		38		27		22	
43	**39**	**50**	**37**	**46**	**39**	**52**	**37**
13		**40**		**24**		**49**	

2023 Senior Cohort - ALL			Percentile Scores (Range is 120-200)				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
Student Names	**Biology Degree Plan**	**Total score (Range is 120-200)**	**Overall 2023 (percentile)**	**Overall previous (percentile)**	**Change in Percentile**	**% change**	**Raw score Section 1 2023**	**Raw score Section 1 previous**	**% change**	**Raw score Section 2 2023**	**Raw score Section 2 previous**	**% change**	**Raw score Section 3 2023**	**Raw score Section 3 previous**	**% change**	**Raw score Section 4 2023**	**Raw score Section 4 previous**	**% change**
Blumhagen, Logan	BS PreMed	**163**	**79**	32	47	147	57	47	21.3	60	31	93.5	60	48	25.0	67	52	28.8
Burch, Hailey	BS PreVet	**136**	**11**	3	8	267	38	27	40.7	47	50	-6.0	29	32	-9.4	38	20	90.0
Garner, Eric	BA	**162**	**77**	19	58	305	65	48	35.4	65	44	47.7	56	32	75.0	59	48	22.9
Gaus, Katie	BA	**139**	**17**	8	9	113	38	45	-15.6	31	38	-18.4	44	39	12.8	45	28	60.7
Haenchen, Bethany	BS PreVet	**130**	**4**	1	3	300	31	27	14.8	47	31	51.6	32	35	-8.6	22	20	10.0
Hockman, Bre	BS PreVet	**156**	**62**	8	54	675	54	35	54.3	44	38	15.8	56	39	43.6	63	36	75.0
Jenner, Abby	BA	**142**	**23**	2	21	1050	54	35	54.3	41	38	7.9	42	20	110.0	38	36	5.6
Kelley, Erin	BS PreVet	**147**	**36**	8	28	350	38	27	40.7	47	41	14.6	48	29	65.5	54	48	12.5
Sheldon, Haylee	BS PreVet	**142**	**23**	3	20	667	38	35	8.6	38	31	22.6	46	32	43.8	48	31	54.8
Sherwood, Victoria	BA	**142**	**23**	2	21	1050	51	35	45.7	41	38	7.9	39	24	62.5	43	31	38.7
Soberg, Palmer	BS PreMed	**178**	**98**	82	16	20	70	65	7.7	81	55	47.3	69	69	0.0	77	67	14.9
Williamson, Emma	BS PreVet	**135**	**10**	7	3	43	23	42	-45.2	44	23	91.3	27	42	-35.7	50	36	38.9
Winn, Claire	BS PreVet	**142**	**23**	1	22	2200	35	45	-22.2	41	31	32.3	46	24	91.7	48	22	118.2
	AVERAGE	**147**	**37**	**14**	**24**	**553**	**46**	**39**	**19**	**48**	**38**	**31**	**46**	**36**	**37**	**50**	**37**	**44**

BS Biology - PreVet
BS Biology - PreMed
BA Biology

One Students with only Senior MFT Data																		
Student Name	**Biology Degree Plan**	**Total score (Range is 120-200)**	**Overall 2023 (percentile)**	**Overall previous (percentile)**	**Change in Percentile**	**% change**	**Raw score Section 1 2023**	**Raw score Section 1 previous**	**% change**	**Raw score Section 2 2023**	**Raw score Section 2 previous**	**% change**	**Raw score Section 3 2023**	**Raw score Section 3 previous**	**% change**	**Raw score Section 4 2023**	**Raw score Section 4 previous**	**% change**
	BS PreMed	**140**	**19**	**N/D**	**N/D**	**N/D**	51	**N/D**	**N/D**	41	**N/D**	**N/D**	29	**N/D**	**N/D**	45	**N/D**	**N/D**

2023 Senior Cohort - BA BIO		Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
Student Names	Total score (Range is 120-200)	Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2023	Raw score Section 1 previous	% change	Raw score Section 2 2023	Raw score Section 2 previous	% change	Raw score Section 3 2023	Raw score Section 3 previous	% change	Raw score Section 4 2023	Raw score Section 4 previous	% change
	162	**77**	19	58	305	65	48	35.4	65	44	47.7	56	32	75.0	59	48	22.9
	139	**17**	8	9	113	38	45	-15.6	31	38	-18.4	44	39	12.8	45	28	60.7
	142	**23**	2	21	1050	54	35	54.3	41	38	7.9	42	20	110.0	38	36	5.6
	142	**23**	2	21	1050	51	35	45.7	41	38	7.9	39	24	62.5	43	31	38.7
AVERAGES	**151**	**47**	**14**	**34**	**209**	**52**	**47**	**10**	**48**	**41**	**15**	**50**	**36**	**44**	**52**	**38**	**42**

		Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	I			II			III			IV		
		77	19	58	1050	65			65			56			59		
		23	2	21	1050	54			41			44			45		
		23	2	21	305	51			41			42			43		
		17	8	9	113	38			31			39			38		
AVERAGES	**151**	**47**	**14**	**34**	**209**	**52**			**48**			**50**			**52**		

2023 Senior Cohort - BS BIO			Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
	Student Names	Total score (Range is 120-200)	Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2023	Raw score Section 1 previous	% change	Raw score Section 2 2023	Raw score Section 2 previous	% change	Raw score Section 3 2023	Raw score Section 3 previous	% change	Raw score Section 4 2023	Raw score Section 4 previous	% change
1		163	**79**	32	47	147	57	47	21.3	60	31	93.5	60	48	25.0	67	52	28.8
2		178	**98**	82	16	20	70	65	7.7	81	55	47.3	69	69	0.0	77	67	14.9
3		136	**11**	3	8	267	38	27	40.7	47	50	-6.0	29	32	-9.4	38	20	90.0
4		130	**4**	1	3	300	31	27	14.8	47	31	51.6	32	35	-8.6	22	20	10.0
5		156	**62**	8	54	675	54	35	54.3	44	38	15.8	56	39	43.6	63	36	75.0
6		147	**36**	8	28	350	38	27	40.7	47	41	14.6	48	29	65.5	54	48	12.5
7		142	**23**	3	20	667	38	35	8.6	38	31	22.6	46	32	43.8	48	31	54.8
8		135	**10**	7	3	43	23	42	-45.2	44	23	91.3	27	42	-35.7	50	36	38.9
9		142	**23**	1	22	2200	35	45	-22.2	41	31	32.3	46	24	91.7	48	22	118.2
		148	38	16	22	519	43	39	13	50	37	40	46	39	24	52	37	49

I		II		III		IV	
70		81		69		77	
57	**33%**	60	**22%**	60	**67%**	67	**44%**
54		47		56		63	
38		47		48		54	
38		47		46		50	
38		44		46		48	
35		44		32		48	
31		41		29		38	
23		38		27		22	
43	**39**	**50**	**37**	**46**	**39**	**52**	**37**
13		**40**		**24**		**49**	

2023 Senior Cohort - ALL		Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
Student Names	**Total score (Range is 120-200)**	**Overall 2023 (percentile)**	**Overall previous (percentile)**	**Change in Percentile**	**% change**	**Raw score Section 1 2023**	**Raw score Section 1 previous**	**% change**	**Raw score Section 2 2023**	**Raw score Section 2 previous**	**% change**	**Raw score Section 3 2023**	**Raw score Section 3 previous**	**% change**	**Raw score Section 4 2023**	**Raw score Section 4 previous**	**% change**
	163	**79**	32	47	147	57	47	21.3	60	31	93.5	60	48	25.0	67	52	28.8
	178	**98**	82	16	20	70	65	7.7	81	55	47.3	69	69	0.0	77	67	14.9
AVERAGE	**171**	**89**	**57**	**32**	**83**	**64**	**56**	**14**	**71**	**43**	**70**	**65**	**59**	**13**	**72**	**60**	**22**

One Students with only Senior MFT Data																	
Student Names	**Total score (Range is 120-200)**	**Overall 2023 (percentile)**	**Overall previous (percentile)**	**Change in Percentile**	**% change**	**Raw score Section 1 2023**	**Raw score Section 1 previous**	**% change**	**Raw score Section 2 2023**	**Raw score Section 2 previous**	**% change**	**Raw score Section 3 2023**	**Raw score Section 3 previous**	**% change**	**Raw score Section 4 2023**	**Raw score Section 4 previous**	**% change**
	140	**19**	**N/D**	**N/D**	**N/D**	51	**N/D**	**N/D**	41	**N/D**	**N/D**	29	**N/D**	**N/D**	45	**N/D**	**N/D**

ALL PreMed Seniors	**Total score (Range is 120-200)**	**Overall 2023 (percentile)**	**Raw score Section 1 2023**	**Raw score Section 2 2023**	**Raw score Section 3 2023**	**Raw score Section 4 2023**
	163	79	57	60	60	67
	178	98	70	81	69	77
AVERAGE	**171**	**89**	**64**	**71**	**65**	**72**

BS Biology - PreVet
BS Biology - PreMed
BA Biology

2023 Senior Cohort - PreVet		Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
Student Names	Total score (Range is 120-200)	Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2023	Raw score Section 1 previous	% change	Raw score Section 2 2023	Raw score Section 2 previous	% change	Raw score Section 3 2023	Raw score Section 3 previous	% change	Raw score Section 4 2023	Raw score Section 4 previous	% change
	136	**11**	3	8	267	38	27	40.7	47	50	-6.0	29	32	-9.4	38	20	90.0
	130	**4**	1	3	300	31	27	14.8	47	31	51.6	32	35	-8.6	22	20	10.0
	156	**62**	8	54	675	54	35	54.3	44	38	15.8	56	39	43.6	63	36	75.0
	147	**36**	8	28	350	38	27	40.7	47	41	14.6	48	29	65.5	54	48	12.5
	142	**23**	3	20	667	38	35	8.6	38	31	22.6	46	32	43.8	48	31	54.8
	135	**10**	7	3	43	23	42	-45.2	44	23	91.3	27	42	-35.7	50	36	38.9
	142	**23**	1	22	2200	35	45	-22.2	41	31	32.3	46	24	91.7	48	22	118.2
AVERAGE	**142**	**28**	**5**	**23**	**398**	**40**	**29**	**38**	**46**	**40**	**19**	**41**	**34**	**23**	**44**	**31**	**47**

BS Biology - PreVet
BS Biology - PreMed
BA Biology

Averages		Percentile Scores				Subscore 1: Cell Biology			2: Molecular Biology and Genetics			3: Organismal Biology			4: Population Biology, Evolution, and Ecology		
Degree Program	Total score (Range is 120-200)	Overall 2023 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2023	Raw score Section 1 previous	% change	Raw score Section 2 2023	Raw score Section 2 previous	% change	Raw score Section 3 2023	Raw score Section 3 previous	% change	Raw score Section 4 2023	Raw score Section 4 previous	% change
BS PreVet	142	28	5	23	398	40	29	38	46	40	19	41	34	23	44	31	47
BS PreMed	171	89	57	32	83	64	56	14	71	43	70	65	59	13	72	60	22
BA - ALL	151	47	14	34	209	52	47	10	48	41	15	50	36	44	52	38	42