Biology BS Annual Assessment 2019-2020

Contents

Annual Assessment 2019-2020

Biology BS

Program Profile

Program Mission Statement
Please insert your program mission statement here

A professionally oriented program with two concentrations specifically designed to both educate students in the biological sciences and prepare them for acceptance into graduate or professional programs.

Program Data

Delivery Method

Traditional On Campus (selected)
Online
Hybrid

	Majors	Minors	Concentrations
2018-19	65	N/A	Pre-Med Preparation - 23 students Pre-Vet Preparation - 22 students Pre-Nursing Preparation - 3 students *There is a discrepancy between the total number of concentrations (23 PreMed, 22 PreVet and 3 PreNursing) resulting in 48 majors, yet the number of declared B.S. majors being 65
2019-2020	65	N/A	Pre-Med Preparation - 27 students Pre-Vet Preparation - 25 students Pre-Nursing Preparation - 2 students *There is a discrepancy between the total number of concentrations (27 PreMed, 25 PreVet and 2 PreNursing) resulting in 54 majors, yet the number of declared B.S. majors being 65

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 your persistence numbers what you expected? If not, how could the numbers be improved? What is the optimal enrollment for the program?

Our 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.

The retention data shows that 68.8% for students that entered during 2018/2019, so we did "Not Meet" our benchmark, but the University as a whole only had a 75.9% retention rate for this year, which is down from 83.9% for the previous year. This smaller retention rate than the University may be due to large about of faculty turn over the Science program

has seen over the last several years. We also feel the fact that the "Pre-Nursing" concentration is under the Biology BS degree and there has been a lot of turn over and confusion with the program not receiving state certification, those number could have an impact on our retention numbers. In addition, Exercise Science started a "Pre-Physical Therapy" concentration, and there is the possibility we may have loss a few students to them changing their major to Exercise Science. **There is also the problem of the number of students enrolled in the three BS concentrations still does not equal the total number of declared as a Biology BS major. This inconsistency in data makes it extremely difficult to truly determine which Biology BS students are being retained and which are leaving the program.**

By our program goal mentioned above, we would expect a graduation rate ~60%. The current data shows a graduation rate of exactly 60.0% for new students who entered 2013/2014, as well as a graduation rate of exactly 60.0% for transfer students who entered 2013/2014, showing even though we have had a high amount of faculty turn over the last several years, we were successful at graduating the students we do retain.

*The PreNursing Concentration was only meant to be a "holding spot" for PreNursing students as the BSN program was being developed, so we knew this would affect our retention rates and our graduation rates. The current two PreNursing students never intended to complete a BS degree in Biology, as their goal was to apply for acceptance in the WWU BSN program once approved. The development of a PreNursing BA degree was supposed to occur so that all new incoming "PreNursing" students would be placed into that program; however, that never occurred and the Director of Nursing left the University in December 31, 2019. In February, it was announced that William Woods University was pulling the application we had at the state board for review and that WWU would only be continuing the RN to BSN on-line completion program. This left any Pre-nursing students (both incoming and second year students) with the lack of a degree to pursue here at William Woods. We know several of those Pre-Nursing students left the University in January (after the fall 2019 semester) and openly expressed they were not planning to return next fall (Fall 2020). Therefore, we know this will affect our retention rate next year and could have future effects on our Biology BS graduation rates. We want to be sure to note the PreNursing Concentration here because we were worried about this issue at the onset, and so it is officially documented in case our retention and graduation rates are lower than except in the future assessment report, and it is clear why we "lost" a specific sub-population of our Biology BS students.

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

Marketing Materials
Please reflect on the current marketing materials used for the program. Detail what documents you are reviewing and attach a screenshot of any webpages or materials that you cannot include as a document. What changes, if any should be made to the material? Are there recommendations for how or where to market the program?

The Biology faculty helped marketing develop a new page sheet in 2018-2019. In addition, in Spring of 2019 one of our Biology BS seniors (Arianna Arnold – Pre-Med) was involved in a photo shoot with marketing. That photo shoot lead to one of the photos being used on the "Flourish in Biology" billboard on U.S. Route 54 in Missouri near Kingdom City. In addition, the Biology faculty provided input on a new Pre-Vet poster for use at EQS Admission events and helped with revision of an article about the Equine Center for Medicine and the Pre-Vet concentration for the university magazine. In addition, the Biology faculty met several times with Kathy Groves (Vice President of Enrollment) and the admission team about recruitment and our programs. Many of the avenues discussed for marketing/recruiting were for the Biology Program as a whole.

Marketing Material

Program Assessment

Standard/Outcome

Identifier	Description
WWU2016.1	Major Field Competence: Students will demonstrate excellence in an academic or professional discipline, and engage in the process of academic discovery.
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.
WWU2016.3	Self-Liberation: Students will develop an honest understanding and appreciation of themselves and others resulting in an ability to make individual decisions.
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.

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 Pre-Med.5	Construct a competitive candidacy for admission to undergraduate medical studies: integrating a strong academic record, proof of observation of medical practice, and identification of other medical school specific admission factors that the individual student must meet.
BIO Pre-Vet.5	Construct a competitive candidacy for admission to undergraduate Veterinary medical programs integrating a strong academic record, proof of observation of veterinary practices in two or more areas of the veterinary animal categories, and identification of other veterinary school specific admission factors that the individual student must meet.
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.

Alignment to the University Objectives

Please discuss the program alignment to the University Objectives. We do not need an artifact for each objective, but a discussion on how the program uses the Institutional Objectives as an anchor for their 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 the Program Objectives? What courses within your program build upon skills learned in general education courses (please list the program course and the general education criteria). The General Education clusters are: Critical Analysis, Creative Expression, Quantitative Inquiry, and Society & the Individual. See attached for more detailed breakdown.

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 Fall 2019

Program Alignment to NSSE Objectives
How did your program integrate the three NSSE objectives determined by the faculty this fall. The objectives were to 1) integrate more interdisciplinary work within the curriculum, 2) to connect learning to societal problems or issues, and 3) to examine the strengths and weaknesses of their (students) own views on a topic or issue. Please articulate which courses, and what assignments were assigned and how the work was assessed. Were the assignments successful? What could have made them more successful?

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 2020 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. Her Genetics class (Bio 231/232) worked with Dr. Antje Heese (Associate Professor) from the Biochemistry Department at the University of Missouri come and lecture prior to our students to participating in their research by trying to identify a mutant in the plant, Arabidopsis thaliana, using PCR genotyping. The work was 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 was extremely successful both in students' perceptions, and in what they learned from the activities. Dr. Keller plans to continue this collaborative learning activity in the future.

Similarly, in her 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.

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, and Human Anatomy and Physiology BIO 314/314).

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 other's survival) we did seek to explicitly connect learning to societal problems or issues. For instance, in Neuroscience (BIO 343) Dr. Sarah Greenland-White had her students study, and write about an aspect of neuroethics. This work went beyond learning the mechanics of the brain—rather it gave students an opportunity to connect what they were learning with real world concerns. For instance, is it an invasion of privacy to use functional neural imaging techniques to determine guilt in a court case? What are the ethical implications of removing memories (for instance in the case of post-

traumatic stress disorder)? These projects were assessed via written report. The overall activity was valuable to the students, though in the future Dr. Sarah Greenland-White would like to have the students present their work to their classmates for peer-to-peer discussion.

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, though this year in BIO 114 the students also read each others' rough drafts and gave in-class personalized feedback to their peers prior to the feedback from the professor.

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

Bachelor of Science - Core Assessment

	BIO 114	**BIO 115**	**BIO 124**	**BIO 231**	**BIO 310**	**BIO 330**
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		
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
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
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	A, R	R	R	R

	BIO 401	**BIO 450**	**CHM 114**	**CHM 124**	**CHM 314**	**PHY 201**	**PHY 212**	**Student Performance Review**	**BIO 313**	**BIO 317**	**CHM 324**
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	R							A	R	R	M
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, M							A	R	R	R
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	R		I	R	R	I	R	A	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.	M		I	R	R			A	R	R	M
									M	M	R

	CHM 440	MAT 124	MAT 214	MAT 304	BIO 450	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.	M	R	R	R		
BIO Pre-Med.5 Construct a competitive candidacy for admission to undergraduate medical studies: integrating a strong academic record, proof of observation of medical practice, and identification of other medical school specific admission factors that the individual student must meet.	R	R	R	R	A, M	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.						
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	M	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.	R					

	MAT 304	BIO 450	Student Performance Review	BIO 303	CHM 324	CHM 440
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	R			R	R, M	M
BIO Pre-Med.5 Construct a competitive candidacy for admission to undergraduate medical studies: integrating a strong academic record, proof of observation of medical practice, and identification of other medical school specific admission factors that the individual student must meet.	R	A, M	A	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.				R		
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	R			R	R, M	M
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.				M	R	R

Biology BS: PreVet Concentration

	BIO 303	**CHM 324**	**CHM 440**	**MAT 124**	**MAT 304**	**EQU 111**
BIO 2019.4 Information and Energy: Demonstrate knowledge of major conserved metabolic, signaling, heritable, and molecular processes of all life on Earth.	R	R, M	M	R	R	
BIO Pre-Vet.5 Construct a competitive candidacy for admission to undergraduate Veterinary medical programs integrating a strong academic record, proof of observation of veterinary practices in two or more areas of the veterinary animal categories, and identification of other vetrinary school specific admission factors that the individual student must meet.	R	R	R	R	R	I
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.	R					
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.	R	R, M	M	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.	M	R	R			

	EQU 117	EQS 306	EQS 376	EQS 404	BIO 450	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.		R	R	R		
BIO Pre-Vet.5 Construct a competitive candidacy for admission to undergraduate Veterinary medical programs integrating a strong academic record, proof of observation of veterinary practices in two or more areas of the veterinary animal categories, and identification of other vetrinary school specific admission factors that the individual student must meet.	I	R	R	M	A, M	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.		R	R			
BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.		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.		M	M	M		

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 2020 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 Bachelor of Science - Core Assessment

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 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	100% of the declared Biology Major on the date completed the MFT (n=27)		
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	100% of the declared Biology Major on the date completed the MFT (n=27)		

BIO 401

Assessment Measure	Criterion	Summary	Attachments of the Assessments	Improvement 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? Met	83% of the students got 70% or better (n=12) on the questions used for Assessment	Assesment_questions_for_BIO401_Evolution.docx	

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Proficiency Written Exam	Has the criterion Students are asked a question regarding some aspect of Evolution in which they must answer based on the knowledge they have gained through various Biology Courses. Benchmark: 70% of students scoring 3/5 or higher on interview questions been met yet? Not met	The Biology Faculty redesigned this portion of the University's Student Performance Days (SPD) to be more of a data analysis component. While we are happy with the choice to include this component in our SPD as this a skill our Biology Majors will need to have in a science career, it meant the assessment performed no longer meets this criterion.		- Revise Assignment for Assessment: Remove this criterion from further Assessment Reports
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? Met	Both of the criterion were Met as the average score on Section III of the MFT this year was 58 for the students and 100% of the students scored a 46 or higher (n=7).		
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?	Both of the criterion were Met as the average score on Section IV of the MFT this year was 59 for the students and 71% of the students scored a 51 or higher (n=7)		

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

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 students at Proficient or better. Proficient is defined as 70% or better on the assessed questions. been met yet? Met	89.7% of the students scored 70% or better on the given set of questions from Exam 1 (n=58)	Assesment_questions_Bio_114_exam_1.docx	

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	100% of the declared Biology Major on the date completed the MFT (n=27)		
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	100% of the declared Biology Major on the date completed the MFT (n=27)		

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 a 51 or higher. been met yet? Met	Both of the criterion were Met as the average score on Section I of the MFT this year was 56 for the students and 71% of the students scored a 51 or higher (n=7)		
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 a 51 or higher. been met yet? Not met	Both of the criterion were Not Met as the average score on Section II of the MFT this year was 52 for the students and only 43% of the students scored a 51 or higher (n=7).		- Revise Program Benchmark: Since the MFT was reworked and this is a new version, in August the Biology faculty will look closely at this section and determine if our benchmarks need to be adjusted with the content now contained in this section of the MFT as a large portion of our Biology Majors did poorly on this section.

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 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	100% of the declared Biology Major on the date completed the MFT (n=27)		

Direct - External Testing	Has the criterion Biology 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	100% of the declared Biology Major on the date completed the MFT (n=27)		
Direct - External Testing	Has the criterion Biology 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	100% of the declared Biology Major on the date completed the MFT (n=27)		

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? Met	97% of the students got 70% or better (n=34) on the questions used for Assessment	Assesment_questions_for_BIO124_General_Biology_II.docx	

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Proficiency Written Exam	Has the criterion Students are asked a question regarding some aspect of Molecular structure in which they must answer based on the knowledge they have gained through various Biology Courses. Benchmark: 70% of students scoring 3/5 or higher on interview	The Biology Faculty redesigned this portion of the University's Student Performance Days (SPD) to be more of a data analysis		- Revise Assignment for Assessment: Remove this criterion from further

	questions been met yet? Not met	component. While we are happy with the choice to include this component in our SPD as this a skill our Biology Majors will need to have in a science career, it meant the assessment performed no longer meets this criterion.		Assessment Reports
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 a 51 or higher. been met yet? Met	Both of the criterion were Met as the average score on Section I of the MFT this year was 56 for the students and 71% of the students scored a 51 or higher (n=7)		
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 a 51 or higher. been met yet? Not met	Both of the criterion were Not Met as the average score on Section II of the MFT this year was 52 for the students and only 43% of the students scored a 51 or higher (n=7).		- Revise Program Benchmark: Since the MFT was reworked and this is a new version, in August the Biology faculty will look closely at this section and determine if our benchmarks need to be adjusted with the content now contained in this section of the MFT as a large portion of our Biology Majors did poorly on this section.
Direct - External Testing	Has the criterion Major Field Test - Section: III Benchmark = Average score of 53 or higher on section, with 60% of	Both of the criterions were Met as the average score on		

	students scoring a 46 or higher. been met yet? Met	Section III of the MFT this year was 58 for the students and 100% of the students scored a 46 or higher (n=7).		

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

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	100% of the declared Biology Major on the date completed the MFT (n=27)		

BIO 231				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - External Testing	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	86.4% of the students scored 70% or better on the specific Assessment Quiz (n=22)	Quiz_11_Assessment_Quiz_for_BIO231_Genetics.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? Met	86% of the students had an overall percentile rank score on the MFT of 50 or better (n=7)	MFT_comparative_results_2020_Data_Tallies.xlsx	

Assessment Findings for the Assessment Measure level for Biology BS: PreMed Concentration

BIO Pre-Med.5 Construct a competitive candidacy for admission to undergraduate medical studies: integrating a strong academic record, proof of observation of medical practice, and identification of other medical school specific admission factors that the individual student must meet.

BIO 450				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Interview	Has the criterion 75% or greater of the student interview responses will be satisfactory or better. been met yet? Not met	Due to the movement of all on-ground classes to online on March 16th due to COVID-19, individual interviews with at least two of the faculty were not able to be done and so the benchmark was “Not Met”		
Direct - Class Assignment	Has the criterion 100% of students produce a professional CV or Resume been met yet? Met	100% of the students (n=24) produced a professional CV or Resume		

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Indirect - Survey of Students	Has the criterion 60% of students actively participating in shadowing or other volunteer roles that will make them competitive for jobs in the medical and human healthcare related jobs and professional programs. been met yet? Not met	The highest percentage for any of the Shadowing time frames (summer 2019, the academic year, or summer 2020) was 54.55% (n=11); still falling below the 60% benchmark.		- Request Additional Support: Discuss ways to stress shadowing in our Pre-Med Students

Assessment Findings for the Assessment Measure level for Biology BS: PreVet Concentration

BIO Pre-Vet.5 Construct a competitive candidacy for admission to undergraduate Veterinary medical programs integrating a strong academic record, proof of observation of veterinary practices in two or more areas of the veterinary animal categories, and identification of other vetrinary school specific admission factors that the individual student must meet.

BIO 450				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Direct - Interview	Has the criterion 75% or greater of the student interview responses will be satisfactory or better. been met yet? Not met	Due to the movement of all on-ground classes to online on March 16th due to COVID-19, individual interviews with at least two of the faculty were not able to be done and so the benchmark was “Not Met”		
Direct - Class Assignment	Has the criterion 100% of students produce a professional CV. been met yet? Met	100% of the students (n=24) produced a professional CV or Resume		

Student Performance Review				
Assessment Measure	**Criterion**	**Summary**	**Attachments of the Assessments**	**Improvement Narratives**
Indirect - Survey of Students	Has the criterion 60% of students actively participating in shadowing veterinarians and/or volunteering in other animal care avenues to make them competitive for applying to veterinarian schools. been met yet? Met	We feel this benchmark was met as 77.78% of students reported they shadowed last summer (2019) and 66.67% of the students reported shadowing during the academic year. While only 55.56% had secured shadowing for the upcoming summer (2020), as it was only mid-February and the other 44.44% were in the process of finding a shadowing experience – so we overall feel this bench mark was in fact “Met”.	PreVet_Shadowing_Survey.pdf	

Analysis of the Assessment Process

Describe your assessment process; clearly articulate how the program is using course work and or assessment day activities for program assessment. Note any changes that occurred to that process since the previous year. Discuss what activities were successful at assessment 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.

The three Biology faculty compiled this report: Dr. Kimberly L. Keller, Dr. Robin Hirsch-Jacobson, and Dr. Sarah Greenland-White.

There were areas in which our majors did not meet the benchmark for our Objectives. Summaries and improvement narratives are included under each assessment field within this report where we feel action is required. The main area where our students fell short of the benchmark were the cohort scoring an average score for the cohort on section two (II) of the Major Field Test. For Sections II, both of the criterions were not met: obtaining an average score of 53 or higher on section, with 60% of students scoring at or above 51 on the section. The Direct Written Exam questions for Objective 1 and Objective 3 were not met; however, the reason was due to a change the Biology faculty made in the Student Performance Days and will be discussed fully below.

The Major Field Test (MFT) was given to our graduating seniors during Student Performance Days in February. We have struggled in past years with the amount of effort our students gave for this exam; however, we do not feel this was the case this year and so we feel the scores this year do reflect the type and level of work the faculty have seen of these students in the classroom. Based on the MFT of the Biology Senior students, the average score for the cohort per section did not meet the benchmark of a cohort average of 53 or higher (Section II of MFT) and they also did not meet the benchmarks of 60% of students scoring a 51 or higher (Section II of MFT). We were rather pleased the benchmark of 50% of students scoring at the 50th percentile rank or higher (Objective 4) was also “Met” this year, showing the students overall performed well on the exam. We were rather pleased the benchmark of 50% of students scoring at the 50th percentile rank or higher (Objective 4) was also “Met” this year, showing the students overall performed well on the exam. While we will definitely have discussions regarding the content and changes to this MFT to determine if we need to change any benchmarks for the 2020 – 2021 academic year. We will continue to use the MFT to assess student knowledge and the effectiveness of the program. One idea the Biology faculty are considering is using a “median score” of 53 instead of the “average score” of 53 as our overall cohort tend to be small (< 20 students of graduating seniors, both BA and BS), often with a single outlier. When looking at the graduating seniors as a whole (both B.A. and B.S.), it appears the benchmark is satisfactory for the MFT.

The problem of a small cohort for statistical significance will probably always exist at a university the size of William Woods, and strongly supports the usefulness of determining “knowledge added” assessment by determining “value added” to their score on the MFT. This was the first year that majority of our graduating seniors (10 out of 11, both BA and BS) and the all the BS seniors (7 of 7) had taken the MFT as a freshman (Spring 2017) and as a senior (Spring 2020). Therefore, we have our first data of a “large” cohort so we can use this information to make benchmarks for the “knowledge gained” or “value added for our program. We are excited that the 2020 seniors had an average percentile rank change of 33 percentile ranks and the average percent gain from their freshman score was 301%. Even with a cohort of three that took the MFT as freshman and as seniors, the cohort still showed a gain of 39 percentile rank points and an average of 368% improvement from their initial score. We are very excited with these results. With the five seniors who graduated in 2019 and the seven senior who graduated in 2020, we now have a total cohort of 15 who took the MFT upon entering and exiting the program so the Biology faculty will use the scores of the freshman students who have taken the MFT in the fall semester and these two senior cohorts to help set our benchmark for the “knowledge/value added.”

This is the fourth year we have had our incoming Biology Majors take the MFT; however, this is the third year we had them take the exam literally as they are entering the program. All incoming Biology Majors took the MFT during the third week of classes in the fall semester in BIO115, the laboratory associated with BIO114. As the data are for collection purposes only at this point, there is no benchmark attached to the scores for our “freshman.” Our long-term assessment plan for the program will occur when these same students take the MFT as an outgoing senior and then we will be able use the scores on the two exams to determine “value added” of each graduating student in the Biology Program at William Woods University. The Biology faculty are excited about adding this new level of assessment of our seniors. These data could show that while an outgoing senior may not meet the benchmarks of the MFT when comparing it to the national

scores (our current assessment), the same student may show a massive improvement in their score, showing the program was successful as a whole as there would be a definite “value added” assessment.

Normally, we give the students who are not freshman or seniors a question for Objective 1 and Objective 3. We have tried different variations of questions, from individual interview-type questions to written answering of both questions. However, we are always surprised the students who participated in this assessment activity always resulted in “Not Met” for our Biology Majors. In preparing for Student Performance Days, the Biology faculty talked and we decided to drop this assessment because there are too many issues with the assessment tool and effort of the students. As we have three assessments for those two Objectives, we felt fine about dropping that assessment as we still had two other assessments to meet the requirement. All three of the Biology faculty has noticed the students in our classes often struggle with data analysis, so we devised a means to assess their data analysis abilities, because being able to analyze data is a required skill in a Biology/Science career. While there are definitely some changes to the assessment needed, overall we were very pleased with this Assessment Activity and will be including this as part of our Student Performance Review Days. The faculty will discuss it prior to the fall semester, but it will probably be incorporated as part of assessment of Biology BS Objective 5.

Our “tweener” Biology major students, those who are not freshman or seniors also took an Indirect Student Survey using SurveyMonkey with questions inquiring what the students are doing “outside of their coursework” to make them competitive in the next stage of their career. The shadowing data from the survey collected showed that only 54.55% of our PreMed students (Not Met) and so we may look into some events by the faculty or by the Pre-Med Club to reinforce getting shadowing experience in the field they plan to pursue. As the number of shadow hours is a large component to Veterinary applications, we were not surprised that 77.78% of our PreVet students have had at least one shadowing experience in the last year. However, several students did remark they missed having a specific time to interview/check in with the Biology faculty about their progress in obtaining the appropriate shadowing, volunteering, and internships to make them competitive. We will need to discuss if there is a way we could provide an “optional” interview time with faculty for those students wanting that type of input.

In terms of course assessments, the faculty this year made a concerted effort to have a specific quiz or wrote specific exam questions that more specifically addressed assessing the objective. Overall, this writing specific objective based questions approach worked very well as all of the benchmarks associated with a course were “Met” in the core curriculum and resulted in an increase in our assessment numbers. The only course associated benchmark that was “Not Met” was the Direct Interview that normally occurs as part of Biology Practicum (BIO401) in the Pre-Med and Pre-Vet concentrations. Due to the movement of all on-ground classes to on-line on March 16th in response to COVID-19 pandemic, individual interviews with at least two of the faculty were not able to be done. As this assessment activity did not occur, the benchmark was “Not Met”.

Due to some major conflicts with our teaching schedules, weekly department meetings with all three Biology faculty took place much less frequently throughout the academic year than in years past. We mainly use of 100- and 200-level classes and the MFT for our assessment and have very few upper division courses as part of our assessment of the Biology Program. Current discussions during the generation of this report is that we may begin to assess at least one of our objectives (possibly Objective 3) using the required Field courses and now that we have a full-time faculty teaching the required Anatomy & Physiology courses, Physics courses, and Chemistry courses, we may want to consider assessing those as well. A comprehensive review of our Curriculum and Assessment maps will occur prior to the fall 2020 semester to make some possible changes to ensure everyone is satisfied with their respective course-specific components of the assessment of the program.

For a professions-oriented mission statement, we are satisfied with current preparation of our students, especially when you look at where our students are matriculating following graduation. Therefore, we feel only minor changes in our assessment are needed to accurately measure success of the Biology Program. Although we do feel strongly that writing one Assessment Report and combining the B.A. and B.S. students would be a much truer assessment of the Biology program as a whole.

Improvement Narrative List

Assessment Findings for the Assessment Measure level

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 - Proficiency Written Exam
Assessment Findings	Not met
Improvement Narrative	**Improvement Type**: Revise Assignment for Assessment **Summary**: Remove this criterion from further Assessment Reports

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**: Revise Program Benchmark **Summary**: Since the MFT was reworked and this is a new version, in August the Biology faculty will look closely at this section and determine if our benchmarks need to be adjusted with the content now contained in this section of the MFT as a large portion of our Biology Majors did poorly on this section.

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 - Proficiency Written Exam

Assessment Findings	Not met
Improvement Narrative	<table><tr><th>Improvement Type</th><th>Summary</th></tr><tr><td>Revise Assignment for Assessment</td><td>Remove this criterion from further Assessment Reports</td></tr></table>

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	<table><tr><th>Improvement Type</th><th>Summary</th></tr><tr><td>Revise Program Benchmark</td><td>Since the MFT was reworked and this is a new version, in August the Biology faculty will look closely at this section and determine if our benchmarks need to be adjusted with the content now contained in this section of the MFT as a large portion of our Biology Majors did poorly on this section.</td></tr></table>

Standard/Outcome	BIO Pre-Med.5 Construct a competitive candidacy for admission to undergraduate medical studies: integrating a strong academic record, proof of observation of medical practice, and identification of other medical school specific admission factors that the individual student must meet.
Legend	A
Course/Event	Student Performance Review
Assessment Measure	Indirect - Survey of Students
Assessment Findings	Not met
Improvement Narrative	<table><tr><th>Improvement Type</th><th>Summary</th></tr><tr><td>Request Additional Support</td><td>Discuss ways to stress shadowing in our Pre-Med Students</td></tr></table>

Program Activities

Student Performance Review

Describe the department assessment day activities if not already described previously. Please articulate the nature of the assessments are conducted, explain the process for assessment that happens 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?

We use Student Performance Days to have our senior students take the Major Field Test (MFT) in Biology. The BS cohort this year was a smaller cohort (n=7), and a small "n" number always exaggerates any deficiencies in this group and we were not surprised this cohort did not meet any of the benchmarks associated with the MFT. We are considering changing our benchmark from the "average score" to the median score" to help eliminate some of the issues when one student does poorly on the MFT.

This academic year, we were 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. The entire BS senior cohort (n=7) in taking the MFT as a Senior was their second time taking the MFT, so for those students we did generate "knowledge gained/added." As we move forward, this will become an important part of our assessment and so we need to do a better job of tracking our BA students versus our BS. We will need to determine what we feel the Benchmark will be for this 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. The data generated in BIO115 is being used simply as an entry-level baseline. There is no benchmark for this data and "Met" simply implies all students declared as majors at that time took the MFT.

With the moving of the testing of incoming students to the fall, our incoming students Student Performance Day activities involved three separate 30 minute Breakout Sessions, one for each of our Biology Degree Programs. All incoming Biology students were required to attend Breakout Sessions specific to their degree in Biology in which requirements of their Major were discussed, as well as a Question & Answer session about their major, jobs, and other related issues.

We changed our interviews and direct Objective questions of our "sophomore and junior" level students to a Data Analysis assessment activity. This year, students were divided into groups and given a single figure in a scientific article to present the methodologies and explain the data to the class. While we feel this was definitely a worthwhile activity, we know some modifications to analyze data. Therefore, next year we will still divide the students into groups but the scientific article will have enough figures for each student to analyze a separate figure and explain the methodology utilized by authors. This change we provide as the ability to truly assess each student's ability to analyze data and to assess students on a more equal level. This change came at the expense of Direct Written Questions portion of assessment, and we are extremely satisfied with this change. We know we need to refine our assessment tools to help ensure our students are assessed on a more individual level.

Every year during Student Performance Days we bring in a Speaker who gives research-based talk to the entire department. The Speaker this year was Dr. Libby Cowgill, Associate Professor of Anthropology, who gave a talk titled: "Waddling, Wandering, and Weaponry: Using bone to reconstruct past behavior during growth?" 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. We plan to continue this as part of our student performance days. We again held a Meet & Greet/Question & Answer reception after the seminar for students to interact with the speaker, and that was well attend and successful. Therefore, it is definitely something we will continue to incorporate that into our Student Performance Day schedule.

This year was the second year for our "Impartation of Wisdom" lunch event for just our new, incoming students and our outgoing seniors. Over pizza, new majors had the opportunity to talk freely with the seniors about the program, courses, faculty, and anything else they wanted to discuss. This was a faculty-free event designed to help ease some of the concerns new students may have about the program, and overall it went well. While better than the previous year, there were still a few schematic issues of how the event proceeded, in terms of ensuring interactions between freshman and

seniors, but we will address those next year. The Biology faculty feel this is definitely an event worth keeping as part of Student Performance days.

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.
Student_Performance_Days_Schedule___Spring_2020___Final.pdf
Speaker_Flyer___Spring_2020___Libby_Cowgill.pdf

Senior Showcase
Describe program Senior Showcase activities if not detailed previously in the report? What benefit does the program gain from the activities? What if any assessment of students happens during this event? What changes if any will occur due to what is learned by faculty on Senior Showcase?

Due to COVID-19 and the closing of the University and movement of all classes on-line starting March 16th, Senior Showcase was a bit different this year. In a “modified” poster session, a ZOOM meeting was held as our Senior Showcase and included our entire cohort of 11 seniors (4 BA seniors and 7 BS seniors) the three Biology Faculty; the Director of the School of Science and Health (Raymond Hune); our chemistry faculty (Dr. Ellen Moore); and our Physic faculty (Dr. Sean Baldridge). Each student had a 10 minute time limit to share and present their poster and answer questions. As this is one of the main forms of presenting of data in the scientific community, we feel this type of Senior Showcase activity is important. While this year was a slightly different format due to the pandemic, we were very proud of our seniors for doing such an excellent job.

Assessment Rubrics
Upload rubrics used for Senior Showcase or Student Performance Reviews for student assessment.

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?

LEAD Events
Highlight lead events sponsored by program faculty that are connected to program or general education objectives for the past academic year. Include a total number of lead events program faculty sponsored.

Dr. Robin Hirsch-Jacobson
Wednesday, September 4, 2019 at 2:00:00 PM - Weed The Pollinator Garden! - Cone help weed the all native pollinator garden! There will be a conversation about pollinators, current issues and their importance. Then we will pull the grasses so we can have a nice, beautiful, productive garden. Bring clothes you can weed in and some water. We will meet at the greenhouse near UIT. UIT_TechEd_Center - 1 point(s)

Friday, September 20, 2019 at 4:00:00 PM - Biomes and Climate Change - This musical chairs type LEAD event will talk about climate change's affect on four different biomes; the arctic, temperate zones, tropics and oceans. So come on over, learn about the global version of. 300 Science & Language Bldg. - 1 point(s)

Wednesday, October 2, 2019 at 12:00:00 PM - Straws and Streams - Join Conservation Club in learning about plastic pollution through the 32 minute film, Straws, and how you can help. We will have Courtney Coffelt from the Fulton Stream Team at the event to lead a short discussion over the film and discuss plastic in our waterways (she will also be giving out some sweet swag). Ivy Room - 1 point(s)

Wednesday, October 9, 2019 at 3:00:00 PM - Straws and Streams Part 2 - Reserve your spot to join Conservation Club and Courtney Coffelt in cleaning up Fulton. Gloves and bags will be provided just bring yourself and a full reusable bottle of water. Come from 3-4pm to get the LEAD point and/or stick around until 5 to make positive impact on your local waterway! Send your RSVPs to robin.hj@williamwoods.edu Chapel - 1 point(s)

Tuesday, March 10, 2020 at 11:30:00 AM - Women in Science Series: Carolyn's Genetic Research - To kick off Women's History month the WWU science clubs are hosting a Women in Science LEAD series celebrating the massive contributions women have made in the field of science. At this event, Carolyn Van De Reit a Senior Research Scientist will come speak about her scholarly journey and current research. 301 Science - 1 point(s)

Dr. Kimberly L. Keller
Thursday, March 12, 2020 at 6:00:00 PM - Women in Science Series: Temple Grandin and Veterinary Medicine - To kick off Women's History month, the WWU science clubs are hosting a Women in Science LEAD series celebrating the massive contributions women have made in the field of science. At this event, we will show a documentary on Temple Grandin with a short discussion of women in veterinary medicine and questionnaire to follow. Run time: 2 hours. Library Auditorium - 1 point(s)
**This event was scheduled to occur ~1 hour after a campus-wide email was received from the President announcing the move of all on-ground classes to 100% online delivery at William Woods University for the remainder of the spring semester and that he LEAD program was being suspended for the semester due to COVID-19. The students held the event, but we did not scan for LEAD.

Scheduled for Friday, March 20, 2020 - Make a Reusable Bag Event
Cancelled due to COVID-19

Dr. Sarah Greenland-White
March: "Brain Awareness Week"
April: "The Cognitive Impact of Plants" - a presentation of student research.
These LEAD events were scheduled but not were cancelled due to COVID-19

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 accomplishments that a student achieved outside of course work or the normal expectations of student success.

Research Accomplishments
Hannah Clingman – Cox Student Research Fellow
Amy Daniel – Cox Student Research Fellow
Morgan Crooks – Cox Student Research Fellow

Biology Distinguished Scholar (Academic Honors Awards)
• Kayton Coffee

The Owl Achievement Award (Co-Curricular Awards) – Recipients are selected for both their outstanding wisdom and their leadership contributions to the community, with a GPA of at least 3.5
• Kayton Coffee
• Kira Conklin
• Caitlin Cook

2020 Graduates:
Kayton Coffee will be attending Southern College of Optometry (pursuing a O.D.) in Memphis, TN
Kira Conklin will be attending the College of Veterinary Medicine at University of Illinois at Urbana-Champaign (pursuing a DVM) in Urbana, IL
Remie Johnson will be attending the College of Veterinary Medicine at the University of Missouri (pursuing a DVM) in Columbia, MO
Caitlin Cook is on the wait list at the College of Veterinary Medicine at the University of Missouri Columbia, MO

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

2019 Graduates:
Elijah Alcorn is pursuing a Doctor of Medicine (MD) at the University of Missouri–Kansas City School of Medicine in Kansas City, MO
Koral Campbell is working as a research technician at St. Jude's Research Hospital in Memphis, TN
Kelsey Moreland is pursuing an Accelerated Master of Science in Nursing (MSN) at Saint Louis University in St. Louis, MO
Arianne Arnold is working as a Patient Care Technician at Barnes Jewish Hospital, St. Louis, MO

2018 Graduates
Phil Kulpinski is pursuing a Doctor of Podiatric Medicine (DPM) at Rosalind Franklin University of Medicine and Science, Dr. William M. Scholl College of Podiatric Medicine (Fall 2019) in North Chicago, IL
Elyssa Cappaert graduated with an Accelerated Master of Science in Nursing (MSN) from Saint Louis University in St. Louis, MO on May 16, 2020. Elyssa received the 2020 Sister Agnita Claire Day Award, which recognizes the Master student from Saint Louis University School of Nursing who demonstrated excellence, both academically and clinically. Elyssa has accepted a position as a Pediatric Nurse at Ranken Jordan Pediatric Bridge Hospital, in Maryland Heights, Missouri.

Faculty Accomplishments
Highlight special examples of faculty success in the profession/field/content area. This is for any accomplishment of a faculty activity/research/professional nature.
Dr. Sarah Greenland-White received the Cox Distinguished Professorship in Science for the 2019-2020 Academic Year. Project: "The Cognitive Impact of Plants".

Dr. Kimberly L. Keller co-authored, "Facilitating Growth through Frustration: Using Genomics Research in a Course-Based Undergraduate Research Experience," Journal of Microbiology & Biology Education, February, 2020

Dr. Kimberly L. Keller received the Louis D. Beaumont Dad's Association Distinguished Professor Award for Excellence in Teaching for 2020

Dr. Robin Hirsch-Jacobson served as Mentor for the Mentor-Mentee project title "Established and maintained a native

pollinator garden, and created a censusing protocol for the pollinators."

All three Biology Faculty are now RESPOND Certified. RESPOND is an 8-hour training designed to empower university employees to offer effective support to a student or colleague. The course provides a basic overview of symptoms often associated with mental health problems and offers an action plan to help you RESPOND effectively. The course will address campus policies, such as FERPA, as well as mental health resources.

Assessment Rubric

	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 Retention weight: 1.000	✓ The program provides a detailed description on the retention 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 the retention data provided.	The program does not reflect on retention data in a detailed way.	N/A
Comment:				
Defines External Accreditation Standards weight: 1.000	The program provides a detailed explanation of the accreditation organizations within the field along with all the timeline and supplemental information required for accreditation.	The program provides a basic explanation of the accreditation organizations in the field.	The program fails to provide any accreditation information.	✓ 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:				
Curriculum Map alignment weight: 1.000	The curriculum map is detailed and complete.	✓ The curriculum map is complete	The curriculum map is not complete	N/A
Comment:				
Assessment of Objectives 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	Curricular and assessment changes are articulated and validated through data based decisions. Faculty discuss the data that lead to curricular decisions being made.	✓ Curricular and assessment decisions are made based on data provided in assessment, but detailed alignment is not provided as justification for the change.	Changes are proposed and brought forth with little explanation on the data included in the decision, if data was included in the decision.	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 is complete 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 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:				