WILLIAM WOODS
UNIVERSITY

Biology BA Annual Assessment 2023-2024

Annual Assessment 2023-2024

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)
Online
Hybrid

	Student Majors	Student Minors
2022-2023	**18**	**8**
2023-2024	**15**	**7**

Concentrations 2023-2024
If your program contains concentrations, please list the concentrations and the number of students identified within each concentration.

N/A

Concentrations 2022-2023
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 goals mentioned above, we would expect a graduation rate ~60%.

Thanks to a new Institutional Research Officer, we have much better retention, persistence, and graduation data than in years past.

In terms of retention, we are going to say we reach our goal of 75% retention, as 100% of BA Biology Majors that started Fall 2022 returned as Biology Majors in Fall 2023. While only 50% remained as a BA, 100% stayed in the Biology Program.

Retention - First Time Full Time Freshman Fall 2022 – Fall 2023	Total = 2	Rate
Retained Within Major %	1	50.00%
Retained Within Department %	2	100.00%
Retained Within University %	2	100.00%
Did Not Return %	0	0.00%

With the current data, it is hard to get a persistence number; however, we did have a 6-year graduation rate (2017 - 2023) of 75% that graduated with a Biology Degree, which exceeds our goal of a 60% graduation rate.

First Time Full Time Freshman 6 Year Graduation Rate: Fall 2017 – Fall 2023	Total = 4	Rate
Graduated Within Major	3	75.00%
Graduated Within Department	3	75.00%
Graduated Within University	3	75.00%
Did Not Graduate	1	25.00%

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?

We have no major concerns with the biology website, although there is a still photo we would like removed (see screen shot attached). In the past few years, we have worked to update it and it is better now. We have no recommendations to modify the current material. However, we do want to ensure that the marketing department understands the strengths of our programs beyond PreMed and PreVet do they can speak to all potentisl students when they do outreach events. We should have more students enrolled in our Biology BA and have made numerous suggestions in the past five years about marketing to 4-H, FFA, and Hunting Clubs. To that end, we have had meetings with Admissions but are always willing to have others if needed. Plus, we have **requested** additional meetings with marketing to discuss our program, as there has again been turnover in theMarketing Department.

Marketing Material

Webpage_corrections.pptx

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 Institutional Objectives

Please discuss the Program alignment to the Institutional 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.

The Biology Program is strongly aligned with the University Objectives.

Objective 1. The knowledge and scholarship the Biology Program fosters is excellent. From the first required classes, all the way through the program, students take rigorous classes, design and carry out self-designed research projects, examine current research, practice biological techniques, and learn the background and methodology needed to be competent biologists, researchers, scientists, and informed individuals.

Objective 2. The Biology Program strives to be inclusive. This includes sponsoring events where students early in their academic experience can receive advice and guidance from faculty or upper classmates. One of these events is our annual fall retreat where the entire biology faculty and student body attends. This is an opportunity for all the biology students to hear about interesting projects or internships fellow classmates did, as well as a chance to outline their individual biology path. The biology faculty help guide students through their academic plans, and upper classmates provide support and suggestions. This activity helps unify the participants in the biology program, encourages inclusion, and reduces the likelihood that a student “falls through the cracks”. Another way we encourage inclusion is via our annual “impartation of wisdom” lunch that we sponsor in the spring. At this lunch, the senior biology students and the freshman biology students come together to eat (faculty are not present aside from brining the meal), and the freshmen ask the seniors a series of questions about their experiences with the program, their advice, and their suggestions. This activity allows for “real" conversations (students are not recorded, and the faculty is not there to overhear the answers). This has been a positive and inclusion-building event. Seniors can reflect on their experiences, and the freshmen feel more connected to the program and each other. In addition, programmatic knowledge and advice is passed down in a natural way. A more formal way in which inclusion is promoted is via the formation of lab groups in our laboratory classes. Lab groups work together during the three-hour blocks of instruction time, helping each other and providing peer-to-peer support. They often also meet outside of labs to work on their projects and study together.

Objective 3. The biology program also promotes creativity. This is closely related to both the first and second objectives. As students engage in rigorous scholarship, they have the background they need to synthesize ideas creatively. As students work with others, they are appreciative of other ideas they can use those perspectives to arrive at creative solutions, ideas, and experiments. While we understand that creativity is not an “assignable” goal, we strive to encourage

it via the open-ended research projects we require in most classes, the promotion of internship opportunities, and the laboratory assignments in which there isn't one right answer, rather there is a problem that the students must solve in whichever creative and scientifically appropriate way they choose.

Objective 4. We hope that this area of intellectual inquiry is one of our strongest points. From research projects that students and faculty members work on together (whether that be mentor-mentee projects, honors research experiments, Cox grant projects, or one-off "huh, that's interesting let's look into it" projects) we foster an environment of intellectual inquiry. The fantastic thing about biology is that there are ways to get answers to questions people have. So much in biology is still not known—there is a lot of "low-hanging-fruit". That is, there are many questions we have the tools to answer but have not been investigated yet. We work in our classes to expose students to the tools needed to find the answers for themselves, and then expect them to demonstrate that ability. In the lab courses, students conduct research projects in which they synthetize information and come to conclusions, and they design experiments where they are the ones to collect the data and analyze it. Doing so promotes intellectual inquiry and the understanding that they can solve problems by themselves. Plus, a new way we have begun to promote intellectual inquiry is via the Biology Journal Club. This is an optional (but recommended) class in which students read scientific papers and then practice discussing, arguing, and drawing their own conclusions from the research of others.

Institutional_objectives_2.docx

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)?

General Education Tier 1:

Written and Oral Communication: The dissemination of information in Biology is through peer-reviewed scientific journals and poster and oral presentations at various conferences. In all biology coursework, our students are expected to independently generate novel hypotheses regarding specific issues that they might be given and perform research to test it. Students are expected to prepare and perform presentations on content-specific topics where oral communication is important. In addition, students are expected to write extensive technical papers and essays over certain biological topics, so written communication is extremely vital in the sciences. The biology faculty feel that written communication is so important in our discipline that starting fall 2024, all Biology Majors will be required to add a 1-credit "writing intensive" component to one of their upper division Biology courses.

Information Literacy and Historical Perspective: Scientific knowledge builds on information discovered by performing research. Therefore, being able to understand the historical research of a given topic and whether the information a student is finding is from a creditable source are skills used daily by biologists. For scientists, historical perspective and information literacy go hand in hand in understanding from reputable sources the research and knowledge already know so we can design experiments to add to the field.

Natural Science and Mathematics: The natural sciences seek to understand how the world and universe around us works. There are five major branches: astronomy, physics, chemistry, Earth science, and biology. As one of the major branches, it is obvious that this General Education component is literally the foundation of the Biology Program. In all biology coursework students are expected to analyze data, evaluate it critically, and to be able to generate and interpret statistics. As mathematic courses provide students with the quantitative background to perform these activities, our majors are required to take additional math courses beyond the Gen Ed course to be successful. Therefore, having a solid mathematical background from General Education is imperative to be successful as a biologist.

General Education Tier 2:

Expression & Invention: 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. The scientific method is based on creative thinking to determine an experiment to test a hypothesis and being innovate in the experimental design. Testing a hypothesis is all about risk taking, because while the hope is always that there will be a "significant difference" between the control and the

experimental group, yet often there is no significant difference. But all scientific breakthroughs were done because a scientist took a risk and tested their hypothesis.

Inquiry & Analysis: Inquiry is the foundation of the entire biology program. In all biology coursework students are expected to design an experiment, collect data, analyze and evaluate the data critically, and to be able to generate and interpret the statistics performed. In all biology coursework, students are expected to integrate sound logical arguments with the scientific method. Students are expected to read, analyze, and interpret general textbooks, primary scientific literature, and data.

Cultures & Communities: Understanding the historical background, the current controversies, and the multiple perspectives of an issue has an important place in a biology program. We address this in part by requiring "issue" research papers in many of our classes— students are welcome to take whichever position they want on a scientific issue, but they must articulate what the controversy is and why it exists. 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.

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.

The Biology program is working to further students' knowledge and skills in all of the NSSE areas listed. Illustrative examples of these integrative activities and their assessments are included below.

1C. Many of our courses are lab-based. Within these labs students have ample opportunity to explain ideas to each other. Working together to understand a concept and take the next steps in an experiment is vital for becoming a competent scientist. We are proud that our program emphasizes that during labs, as well as in other ways. One way that we are working on moving forward is creating a study space within the Cox (Science) Building, specifically so that students can meet and work together, studying and learning together.

2E. This objective is more commonly thought of with non-science based courses. However, understanding the historical background, the current controversies, and the multiple perspectives on an issue has an important place in a biology program. We address this in part by requiring "issue" research papers in many of our classes—students are welcome to take whichever position they will on a scientific issue, but they must articulate what the controversy is and why it exists. As a program we have started a Biology journal club. While not required, this bi-weekly meeting provides an opportunity for students to debate and examine biological, social, environmental, and medical issues from multiple perspectives.

4C. This is our area to shine! Biology specifically, and science more generally builds on many small parts being understood together. This can happen over the course of one class—e.g. for instance the concepts of diffusion, bulk flow, and gas pressure all coming together into a more complex picture of gas transfer in the lungs and at the level of the tissues in one class, or it can happen over several classes—e.g. information about cell signaling that was learned in an introductory class and then further refined in Cell and Molecular biology becoming relevant in an upper-level elective as students learn about how certain substances can act as endocrine disruptors. The short answer is to say we work hard as a faculty to have our courses build on each other. We are confident in our course series and progression and meet with our students individually and as a group to help them build a course of study that will best enable them to scaffold their knowledge from one course to the next.

4D. In our classes we require research papers that use scientifically credible sources. In Bio 114 we address what is and what is not a scientifically credible source. One of the activities that addresses this is peer-review session where students in Bio 114 review a research paper from one of their classmates. One of the things they look for in this review session is the credibility of the sources cited. This activity seems to enable students to better evaluate their own research papers even more than it provides useful feedback to their classmates for whom they are reviewing their papers.

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 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

	BIO 450	CHM 114	CHM 124	CHM 314	MAT 124	MAT 304	SPR
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

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	100% of students that were declared as Biology Majors at time of MFT took the exam (n = 26)		
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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		

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	Benchmark was Met as 82% of the students received a Proficient (70%) or higher on the Assessment Quiz (n=11)	2023_24_BIO401_ assessment_results.pdf	

SPR				
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	Not Met as the average was only a 48; however, the second part of Benchmark was Met as 66% scored a 46 or higher. (n=3)		- Revise Program Benchmark: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024
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? Met	Met as the average was 62 and 100% of the students scored a 51 or higher. (n=3)		

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 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 only 64% of students scored a 70% or better. N=47		- Curriculum Revision: This year, the questions were taken from the final as opposed to the test immediately after they learned that material. In the past students easily met the benchmark, though I am realizing that they might not have retained the information long-term. In the future I plan to reinforce the concepts for longer-term retention.

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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		
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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		

SPR				
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	Not met as the average was 43 and only 33% of the students scored 51 or higher (n=3)		- Revision of Program Objectives: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024
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	Not Met as the average for this section was only 46 and only 33% of the students scored a 51 or higher. (n=3)		- Revise Program Benchmark: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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	100% of students that were declared as Biology Majors at time of MFT took the exam (n = 26)		
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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		
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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		

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	Benchmark was Met as 82% of the students received a Proficient (70%) or higher on the Assessment Quiz (n=22)	2023_24_124_assessment _results.pdf	

SPR				
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	Not met as the average was 43 and only 33% of the students scored 51 or higher (n=3)		- Revise Program Benchmark: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024
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	Not Met as the average for this section was only 46 and only 33% of the students scored a 51 or higher. (n=3)		- Revise Program Benchmark: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024
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 as the average was only a 48; however, the second part of Benchmark was Met as 66% scored a 46 or higher. (n=3)		- Revise Program Benchmark: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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	**Criterion**	**Summary**	**Attachments of**	**Improvement**

Measure			the Assessments	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 students that were declared as Biology Majors at time of MFT took the exam (n = 26)		

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 78% of students scored a 70% or higher on the final Assessment Quiz. (n = 23)	BIO231_Genetics__ Quiz_11_Scores.pdf	

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 Program Assessment, we use a mixture of Biology courses in our Core Curriculum, the ETS Biology Major Field Test, Scientific Journal Analysis, and Surveys to assess our Biology 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 BIO114 did not meet the 70% of students scoring a 70% or higher on the assessment questions. For the course this year, the questions were taken from the final as opposed to the test immediately after they learned that material. In the past students easily met the benchmark, though we are realizing that they might not have retained the information long-term. In the future, Dr Greenland-White plans 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 BA program, 67% of the students met scoring in the 50th percentile or higher (n=3). In addition, because most of our graduating students also took the exam as an incoming Freshman, we are 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 BA Seniors had an increase in their Percentile Rank from their Freshman; but 100% had a % change of >255%. (n=2, as we did not have Freshman data for 1 of our BA seniors). In the four sections subscores, 100% of our BA Seniors showed an overall increase in the average of their four section subscores from their Freshman to Senior year, and 100% of them had an increase in all 4 of the section subscores. This large 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 Sections I – Cell Biology and Section II – Molecular Biology and Genetics, the benchmarks for the average score and the student's individual subscores were not met. This is not too alarming, as the three BA seniors are all Ecology and Conservation based, so their elective courses did not include many (or any at all) Cell and Molecular-based courses. For Section III – Organismal Biology, average was not met; however, the second part of benchmark was met as 66% scored 46 or higher (n=3). For Section IV – Population Biology, Evolution and Ecology, both benchmarks were met as the average subscore was 62 and 100% of the students scored a 51 or higher (n=3). This is also not surprising as these three students chose field, conservation, and ecology courses as their upper division electives due to their career interests.

While not recorded as part of the Assessment for the Biology BA, our BA students did make a Resume/CV, had a Mock interview with Faculty, and participated in the Research Article analysis (tweeners). For this 100% made a Resume/CV in BIO450 and 50% scored a 3.5 or higher on their Mock Interview (n=2), and 50% of the Tweeners scored a 70% or higher on the research article analysis (n=4).

The Biology faculty attempt to meet weekly throughout the semester, and we will use one of our first meetings in the fall of 2024 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

<table>
<tr><td>Standard/Outcome</td><td>BIO.2 Interdisciplinary: Demonstrate that fundamental principles and laws of chemistry and physics are also underpinnings that govern complex living systems.</td></tr>
<tr><td>Legend</td><td>A</td></tr>
<tr><td>Course/Event</td><td>BIO 114</td></tr>
<tr><td>Assessment Measure</td><td>Direct - Quiz/Exam</td></tr>
<tr><td>Assessment Findings</td><td>Not met</td></tr>
<tr><td>Improvement Narrative</td><td>
<table>
<tr><th>Improvement Type</th><th>Summary</th></tr>
<tr><td>Curriculum Revision</td><td>This year, the questions were taken from the final as opposed to the test immediately after they learned that material. In the past students easily met the benchmark, though I am realizing that they might not have retained the information long-term. In the future I plan to reinforce the concepts for longer-term retention.</td></tr>
</table>
</td></tr>
</table>

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**: Revise Program Benchmark **Summary**: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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**: Revision of Program Objectives **Summary**: As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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 | As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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 | As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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 | As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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	Direct - External Testing

Measure	
Assessment Findings	
Improvement Narrative	

Improvement Type	Summary
Revise Program Benchmark	As this has not consistently been met for several years, Biology Faculty will consider change this benchmark starting Fall 2024

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) days have officially been reduced to one day. Our Student Performance Schedule include the following events: (1) Biology MFT for our Graduating Seniors, (2) Analysis of Research Articles for our second- and third-year Biology Majors ("tweeners"), (3) a survey of students self-reporting their Shadowing experiences (Summer 2023, Winter Break, plan for Summer 2024) for everyone, (4) CLA Exam for our Graduating Seniors (University Assessment), and (5) an "Impartation of Wisdom" luncheon with our new/incoming majors and our graduating seniors. Our planned Speaker cancelled at the last minute, so there was no Research Talk as there has been in the past.

We always use the SPR Days to have our senior students take the Major Field Test (MFT) in Biology. Thirteen Biology Seniors (3 BA and 10 BS Majors) took the MFT this past 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 again 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.

Of our 13 Biology graduating senior students who took the MFT this February, only 9 also took the MFT their first year in the program (7/10 BS students and 2/3 BA students). For those nine students, we were able to determine "knowledge gained" while attending WWU. This is the four 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, with 80% increasing by more than 10% - and we achieved that benchmark. We also included the Benchmark for this "knowledge-gained" in the four subsections for our assessment. 100% of our students will show an overall increase in the average of their four subscores from their Freshman to Senior year, and at least 80% of will have an increase in three of the four subscore sections I - IV. This data was 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 were required to complete a Research Paper Analysis Assessment activity. This was the second year in which we provided our students with a short, peer-reviewed journal article. These students were given three hours and asked to read the journal article and answer the subset of specific questions regarding the figures and the data for the article. This assessment activity is currently under Objective 1 and 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 and equally by each faculty.

This is the fourth year that our first – third years students (first – third years) complete a short survey self-reporting their Shadowing experiences for the previous summer (Summer 2023), the Academic Year/Winter Break, and plans they are working on for Summer (2024). This is the first year we incorporated two questions about Shadowing experiences for the previous summer (Summer 2023), the Academic Year/Winter Break for our graduating Seniors. For our BS PreMed majors, only 42% of them report shadowing in a single timeframe, while 60% of our Biology BS PreVet majors reported completing a shadowing experience in either the previous summer (Summer 2023) or the Academic Year/Winter Break timeframes. We expect to see these numbers return to above our 60% Benchmark in the following year. The Biology Faculty liked this change of including the freshman/new majors in this survey and plan to keep the survey of shadowing to all of our non-graduating Biology majors.

Unfortunately, we were unable to hold an in-person research talk this year. 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 into our Student Performance Day schedule.

A new favorite part of SPR days is our “Impartation of Wisdom” lunch event for just our new/incoming students and our outgoing graduating seniors. 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, this is definitely important in the retention of our students and 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 within the now one day SPR event, 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_2024.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.

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?

N/A

Co-Curricular 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.

The Neuroscience class (BIO343) presented “All about the neuroscience” to Fulton Public Middle School “Project Extra” students, Fulton Missouri, 2024.

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.

Selected as a St. Louis Parks and Recreation intern; where her primary role will be with the mounted park ranger's unit. I will also go around with forestry and horticulture and potentially other departments.

Graduating Seniors:

Eavan Gardener – Received the Faculty Student Award; Presented his Honors Research Urbanization and Pathogenic Infection: An Observational Study of Infection in Urban and Rural Plantago major Populations at Symposium for Research, Scholarship, and Creativity and was awarded the Outstanding Symposium Presentation: and was chosen to give an Oral Presentation of his Honors research at the Missouri Academy of Science (MAS) Annual Meeting at Missouri Western State University, St. Joseph, MO

Jessie Oening – Job working at Warm Springs Ranch, the official breeding facility of the Budweiser Clydesdales, Boonville, Missouri.

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

None to report at this time

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.

Greenland-White, S. E. (2023) “Teaching to Different Levels” Talk at the 2023 Faculty for Undergraduate Neuroscience Workshop “Re-imagining Neuroscience Education”. Bellingham Washington.

Hirsch-Jacobson, R. and E. Gardner (2024) School of Science and Health, William Woods University. Urbanization and Pathogenic Infection: An Observational Study of Infection in Urban and Rural Plantago major Populations.

Keller, K. L. (October 2023) Grant Reviewer for the North-Central Region of Beta Beta Beta, various student grant proposals for undergraduate research funding for their research

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 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:	Program provides recommendation on a photo issue and how to change it.			
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:	reviewer was not able to find the excel sheet for freshmen MFT? All other data was present and easy to follow. .			
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:	The program provided a detailed explanation on the process for assessment and process			
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

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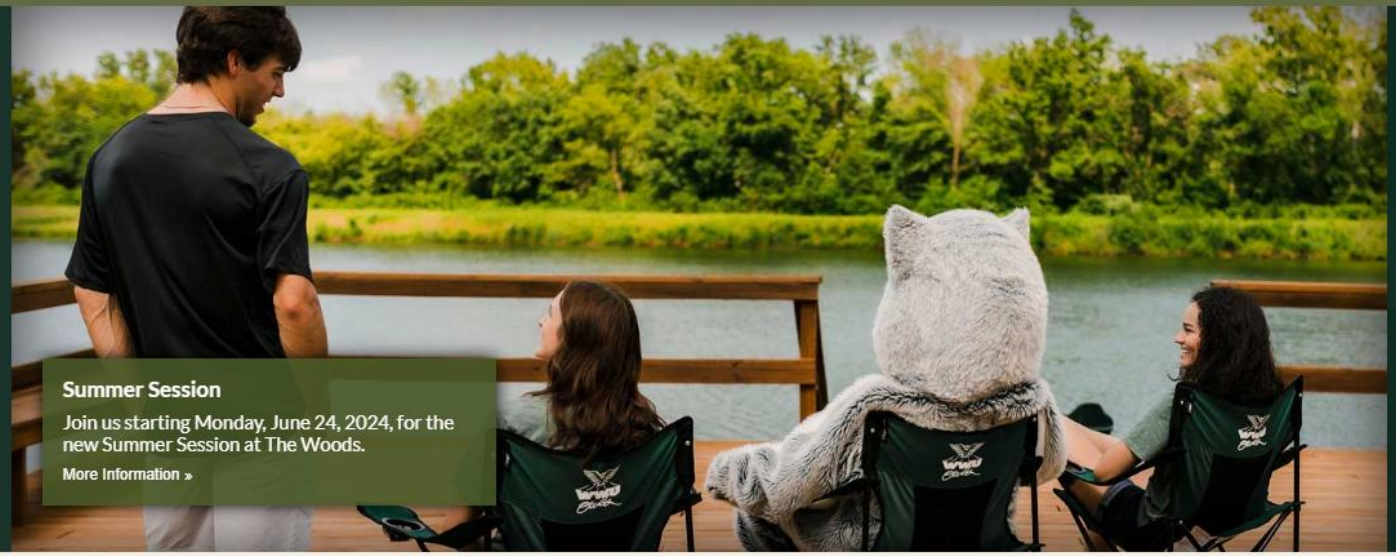

Summer Session

Join us starting Monday, June 24, 2024, for the new Summer Session at The Woods.

More Information »

Introducing William Woods University's New Educational Financial Planner

Students and their families, stressed by FAFSA delays and escalating higher education costs, can access personalized assistance from Dyllon Harper, the Educational Financial Planner at The Woods, to navigate their college decisions.

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Upcoming Events

We have been trying to remove this photo for over 5 years due to how the faculty member left. We have lots of other biology phots that could replace it

Biology Department SPR Day – Spring 2024 – Wednesday, February 2024
Events are REQUIRED of all Biology Majors

Time	Group	Event	Room	Faculty in Charge
10:00am – 12:00pm	**Graduating Seniors**	Biology Major Field Test	Cox200	Dr. Robin Hirsch-Jacobson
10:00 – 2:30pm	**ALL Biology Majors**	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**	Journal Article Review/Data Interpretation/ Figure Analysis **Bring your Laptop Computers**	Cox209	Dr. Kimberly Keller
12:30 – 1:30pm	**Graduating Seniors & First years**	Impartation of Wisdom Lunch	Cox 300	Dr. Sarah Greenland-White
1:30 – 2:00pm	**First years**	Advice I wish someone had told me when I was a 1st year	Cox 300	Dr. Sarah Greenland-White
2:00 – 3:30pm	**Non-transfer, Senior status**	University-wide CLA Testing	Cox200	Dr. Kimberly Keller
6:00 – 7:00pm	**All Biology Majors**	Talk **name** and person	Dulany Library Auditorium	Dr. Sarah Greenland-White

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

Non-transfer, Senior status = Student with Senior status **(**90+ earned credit hours) that did not transfer into WWU (See your advisor if unsure)

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)

Name	Student	BA in Biology BS Biology PreMed BS Biology PreVet	TOTAL SCORE	Percentile Rank	1	2	3	4
	A	BS Biology PreMed	149	40	45	58	52	43
	B	BS Biology PreVet	151	46	38	41	54	61
	C	BS Biology PreVet	157	63	57	58	50	61
	D	BS Biology PreMed	153	52	42	58	56	52
	E	BA in Biology	159	69	48	68	60	56
	F	BS Biology PreMed	143	25	38	34	46	52
	G	BA in Biology	163	78	59	44	62	77
	H	BS Biology PreMed	142	21	48	34	35	52
	I	BS Biology PreMed	145	28	35	47	46	52
	J	BS Biology PreVet	150	44	48	47	48	56
	K	BA in Biology	130	4	23	27	21	52
	L	BS Biology PreVet	149	40	38	47	62	43
	M	BS Biology PreMed	138	13	35	50	35	41

Subscore 1: **Cell Biology**

Subscore 2: **Molecular Biology and Genetics**

Subscore 3: **Organismal Biology**

Subscore 4: **Population Biology, Evolution and Ecology**

	Total score (Range is 120-200)	Overall 2024 (percentile)	Raw score Section 1 2024	Raw score Section 2 2024	Raw score Section 3 2024	Raw score Section 4 2024
B	151	46	38	41	54	61
C	157	63	57	58	50	61
J	150	44	48	47	48	56
L	149	40	38	47	62	43
A	149	40	45	58	52	43
D	153	52	42	58	56	52
F	143	25	38	34	46	52
H	142	21	48	34	35	52
I	145	28	35	47	46	52
M	138	13	35	50	35	41
E	159	69	48	68	60	56
G	163	78	59	44	62	77
K	130	4	23	27	21	52
	148	40	43	47	48	54

BS Only	Total score (Range is 120-200)	Overall 2024 (percentile)	Raw score Section 1 2024	Raw score Section 2 2024	Raw score Section 3 2024	Raw score Section 4 2024
B	151	46	38	41	54	61
C	157	63	57	58	50	61
J	150	44	48	47	48	56
L	149	40	38	47	62	43
A	149	40	45	58	52	43
D	153	52	42	58	56	52
F	143	25	38	34	46	52
H	142	21	48	34	35	52
I	145	28	35	47	46	52
M	138	13	35	50	35	41
	148	**37**	**42**	**47**	**48**	**51**

Section I	Not Met = Only 10% scored a 51 or higher and the average for this Section was only a 42	n=10
Section II	Not Met = Only 30% scored a 51 or higher and the average for this Section was only a 47	n=10
Section III	Met = 80% scored a 46 or higher; but Not Met as Average was 48	n=10
Section IV	Met = 70% scored a 51 or higher; but Not Met as Average was 51	n=10

BA Only	Total score (Range is 120-200)	Overall 2024 (percentile)	Raw score Section 1 2024	Raw score Section 2 2024	Raw score Section 3 2024	Raw score Section 4 2024
E	159	69	48	68	60	56
G	163	78	59	44	62	77
K	130	4	23	27	21	52
	151	**50**	**43**	**46**	**48**	**62**

Section I	**Section I:** Not met as the average was 43 and only 33% of the students scored 51 or higher (n=3)
Section II	**Section II:** Not Met as the average for this section was only 46 and only 33% of the students scored a 51 or higher. (n=3)
Section III	**Section III:** Not Met as the average was only a 48; however, the second part of Benchmark was Met as 66% scored a 46 or higher. (n=3)
Section IV	**Section IV:** Not Met as the average was 62 and 100% of the students scored a 51 or higher. (n=3)

2024 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 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2024	Raw score Section 1 previous	% change	Raw score Section 2 2024	Raw score Section 2 previous	% change	Raw score Section 3 2024	Raw score Section 3 previous	% change	Raw score Section 4 2024	Raw score Section 4 previous	% change
A	149	40				45			58			52			43		
B	151	46				38			41			54			61		
C	157	63	26	37	**142**	57	38	**50.0**	58	34	**70.6**	50	37	**35.1**	61	59	3.4
D	153	52	10	42	**420**	42	45	**-6.7**	58	41	**41.5**	56	35	**60.0**	52	36	44.4
E	159	69	6	63	**1050**	48	20	**140.0**	68	**38**	**78.9**	60	37	**62.2**	56	41	36.6
F	143	25				38			34			46			52		
G	163	78	22	56	**255**	59	54	**9.3**	44	23	**91.3**	62	37	**67.6**	77	56	37.5
H	142	21				48			34			35			52		
I	145	28	12	16	**133**	35	42	**-16.7**	47	31	**51.6**	46	39	**17.9**	52	43	20.9
J	150	44	12	32	**267**	48	38	**26.3**	47	31	**51.6**	48	**37**	**29.7**	56	**50**	12.0
K	130	4				23			27			21			52		
L	149	40	12	28	**233**	38	**31**	**22.6**	47	31	**51.6**	62	52	**19.2**	43	38	13.2
M	138	13	6	7	**117**	35	42	**-16.7**	50	23	**117.4**	35	39	**-10.3**	41	36	13.9
AVERAGES	148	40	13	35	327	43	39	26	47	32	69	48	39	35	54	45	23

BS Biology - PreVet
BS Biology - PreMed
BA Biology

2024 Senior Cohort - PreVet

	Student Names	Total score (Range is 120-200)	Percentile Scores: Overall 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Subscore 1: Cell Biology: Raw score Section 1 2024	Raw score Section 1 previous	% change	2: Molecular Biology and Genetics: Raw score Section 2 2024	Raw score Section 2 previous	% change	3: Organismal Biology: Raw score Section 3 2024	Raw score Section 3 previous	% change	4: Population Biology, Evolution, and Ecology: Raw score Section 4 2024	Raw score Section 4 previous	% change
B		151	46				38			41			54			61		
C		157	63	26	37	142	57	38	50	58	34	70.6	50	37	35.1	61	59	3.4
J		150	44	12	32	267	48	38	26	47	31	51.6	48	37	29.7	56	50	12.0
L		149	40	12	28	233	38	31	23	47	31	51.6	62	52	19.2	43	38	13.2
	AVERAGES	152	48	17	32	214	45	36	33	48	32	58	54	42	28	55	49	10
	Without Uncompared	152	49	17	32	214	48	36	33	51	32	58	53	42	28	53	49	10

BS Biology - PreVet
BS Biology - PreMed
BA Biology

2024 Senior Cohort - ALL

	Student Names	Total score (Range is 120-200)	Percentile Scores: Overall 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Subscore 1: Cell Biology: Raw score Section 1 2024	Raw score Section 1 previous	% change	2: Molecular Biology and Genetics: Raw score Section 2 2024	Raw score Section 2 previous	% change	3: Organismal Biology: Raw score Section 3 2024	Raw score Section 3 previous	% change	4: Population Biology, Evolution, and Ecology: Raw score Section 4 2024	Raw score Section 4 previous	% change
A		149	40				45			58			52			43		
F		143	25				38			34			46			52		
H		142	21				48			34			35			52		
D		153	52	10	42	420	42	45	-6.7	58	41	41.5	56	35	60.0	52	35	48.6
I		145	28	12	16	133	35	42	-16.7	47	31	51.6	46	39	17.9	52	39	33.3
M		138	13	6	7	117	35	42	-16.7	50	23	117.4	35	39	-10.3	41	39	5.1
	AVERAGES	145	30	9	22	223	41	43	-13	47	32	70	45	38	23	49	38	29
	Without Uncompared	145	31	9	22	223	37	43	-13	52	32	70	46	38	23	48	38	29

BS Biology - PreVet
BS Biology - PreMed
BA Biology

	Student Names	Total score (Range is 120-200)	Overall 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change		Raw score Section 1 2024	Raw score Section 1 previous	% change		Raw score Section 2 2024	Raw score Section 2 previous	% change		Raw score Section 3 2024	Raw score Section 3 previous	% change		Raw score Section 4 2024	Raw score Section 4 previous	% change	
B	B	151	46					38				41				54				61			
A	A	149	40					45				58				52				43			
F	F	143	25					38				34				46				52			
H	H	142	21					48				34				35				52			
C	C	157	63	26	37	142		57	38	50		58	34	70.6		50	37	35.1		61	59	3.4	49
J	J	150	44	12	32	267		48	38	26		47	31	51.6		48	37	29.7		56	50	12.0	44
L	L	149	40	12	28	233		38	31	23		47	31	51.6		62	52	19.2		43	38	13.2	43
D	D	153	52	10	42	420		42	45	-6.7		58	41	41.5		56	35	60.0		52	35	48.6	46
I	I	145	28	12	16	133		35	42	-16.7		47	31	51.6		46	39	17.9		52	39	33.3	41
M	M	138	13	6	7	117		35	42	-16.7		50	23	117.4		35	39	-10.3		41	39	5.1	38
Averages	Averages	148	37					42				47				48				51	43	19	
	Averages with Both Scores Only	149	40	13	27	219		43	39	10		51	32	64		50	40	25		51	43	19	44

	2024 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 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change		Raw score Section 1 2024	Raw score Section 1 previous	% change		Raw score Section 2 2024	Raw score Section 2 previous	% change		Raw score Section 3 2024	Raw score Section 3 previous	% change		Raw score Section 4 2024	Raw score Section 4 previous	% change	
E		159	69	6	63	1050		48	20	140.0		68	38	78.9		60	37	62.2		56	41	36.6	46
G		163	78	22	56	255		59	54	9.3		44	23	91.3		62	37	67.6		77	56	37.5	51.5
K		130	4					23				27				21							
	AVERAGES	151	50	14	60	652		43	37	75		46	31	85		48	37	65		67	49	37	
	Without Uncompared	161	74	14	60	652		54	37	75		56	31	85		61	37	65		67	49	37	

BS Biology - PreVet
BS Biology - PreMed
BA Biology

Data is from students that had a Incoming and Senior MFT Score

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 2024 (percentile)	Overall previous (percentile)	Change in Percentile	% change	Raw score Section 1 2024	Raw score Section 1 previous	% change	Raw score Section 2 2024	Raw score Section 2 previous	% change	Raw score Section 3 2024	Raw score Section 3 previous	% change	Raw score Section 4 2024	Raw score Section 4 previous	% change
BS PreVet	152	49	17	32	214	48	36	33	51	32	58	53	42	28	53	49	10
BS PreMed	145	31	9	22	223	37	43	-13	52	32	70	46	38	23	48	38	29
BA Degree	161	74	14	60	652	54	37	75	56	31	85	61	37	65	67	49	37
All Programs = All Students	153	51	13	38	363	46	39	31	53	31	71	53	39	38	56	45	25

AVERAGE of ALL 4 Subscores	42

Quiz 11 – ASSESSMENT Quiz in BIO231 Genetics – Fall 2023									
Points	**2**	**3**	**2**	**3**	**4**	**3**	**3**	**__ / 20**	**%**
Student	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Total**	**Grade**
A	2	3	2	3	4	3	3	20	100
B	2	3	2	3	4	3	3	20	100
C	2	3	2	3	4	3	3	20	100
D	1.5	2.5	2	3	4	3	3	19	95
E	2	2.75	1.75	3	3.5	3	3	19	95
F	2	2.75	2	3	4	2	3	18.75	93.75
G	1.75	3	2	3	4	3	2	18.75	93.75
H	2	3	2	3	4	1.5	3	18.5	92.5
I	2	2.5	2	3	4	2.5	2.5	18.5	92.5
J	2	3	0.5	3	4	3	3	18.5	92.5
K	1.5	2.5	1	3	4	2.5	3	17.5	87.5
L	2	2.5	1.5	3	3.5	2	3	17.5	87.5
M	2	2	2	3	4	2.5	1.5	17	85
N	1.75	2	1	3	4	2	3	16.75	83.75
O	2	2.5	0	3	4	3	2	16.5	82.5
P	2	2.5	2	3	4	1	1.5	16	80
Q	1.5	3	2	3	4	1	1	15.5	77.5
R	1.5	3	1	3	4	0	3	15.5	77.5
S	2	3	0	0	4	3	1	13	65
T	1.5	2	2	3	2	1	1	12.5	62.5
U	1.75	2	1.75	2	2	1	1	11.5	57.5
V	0	1.5	1	0	3	1	1	7.5	37.5
W	2	1.5	0	0	0	0	0	3.5	17.5

78% of students scored a 70% or higher on the final Assessment Quiz. (n = 23)

BIO401 - Evolution

	Quiz #10	%	Zeros removed as these were students who did not take the quiz	# Students who got 70% or better	% of student getting below 70% excluding 0's	% students getting 70% or better
Student 1	0	0	100	9	2	0.82
Student 2	9	90	100			
Student 3	8.5	85	95			
Student 4	10	100	90			
Student 5	9	90	90			
Student 6	6	60	90			
Student 7	9	90	90			
Student 8	6	60	90			
Student 9	9	90	85			
Student 10	10	100	60			
Student 11	9.5	95	60			
Student 12	0	0	0			
Student 13	9	90	0			

BIO124 - Biology for Majors II	Quiz #10	%	Zeros removed as these were students who did not take the quiz	# Students who got 70% or better	% of student getting below 70% excluding 0's	% students getting 70% or better
Student 1	0	0	100	**18**	**4**	**0.82**
Student 2	10	100	100			
Student 3	0	0	100			
Student 4	10	100	100			
Student 5	8	80	100			
Student 6	6	60	100			
Student 7	4	40	100			
Student 8	8	80	100			
Student 9	10	100	80			
Student 10	10	100	80			
Student 11	8	80	80			
Student 12	8	80	80			
Student 13	8	80	80			
Student 14	6	60	80			
Student 15	8	80	80			
Student 16	0	0	80			
Student 17	10	100	80			
Student 18	0	0	80			
Student 19	0	0	60			
Student 20	8	80	60			
Student 21	0	0	60			
Student 22	8	80	40			
Student 23	0	0	0			
Student 24	6	60	0			
Student 25	0	0	0			
Student 26	10	100	0			
Student 27	8	80	0			
Student 28	10	100	0			
Student 29	8	80	0			
Student 30	10	100	0			