

Mission

The Biology Department has three missions: 1. We seek to produce graduates with a broad-based knowledge of biology and the capacity to apply their education in critically evaluating emerging scientific knowledge. 2. The department is committed to providing research opportunities for faculty, undergraduate and graduate students as part of its broader educational mission. 3. The Biology department provides courses that fulfill laboratory science requirements for many other degrees and for the university core curriculum.

Academic Year 2025-2026

BS in Biology - BS-BIOL Learning Outcomes

Knowledge of fundamental principles of Biology

MEASURES	RESULTS	ACTIONS
National average ranking Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for total exam score on the ETS Major Field Exam in Biology. assessment data25-26_outcome 1.xlsx	MET Summary The Biology department at Lamar University MET this expectation of the overall performance on the ETS_MFE (Educational Testing Service Major Field Exam). About 14/26 students scored at or above the national average on the total exam score on the NFE of 151.8. This equates to 53.84% of Lamar Biology students scored above the national average. assessment data25-26_outcome 1.xlsx Analysis A total of 26 students took the ETS_MFE exam and 14 of these students scored above the national average of 151.8. If we look at the data from a semesterly perspective then 16 students took the exam in fall 2025 and 10 students took the exam in spring 2026. About 7/16 students or 43.75% students scored above the national average in the fall 2025 semester. In the spring 26 semester 7/10 students or 70% of the students scored above the national average. Taken together the students scored above the national average for the academic year. The reason for better performance by the spring 26 students could be the result of making sure that students took the course in which this exam is offered in their final semester or once they have completed their biology core courses. This was implemented once the new department chair took office at the start of the AY25-26.	Maintain Assessment Strategy Because the changes made to when the students take the exam in their curriculum seems to be working, we would like to maintain this strategy and collect more data points over the next two years.
Number in the 50th percentile Direct - Other Target At least 50% of Lamar biology students will score at or above the 50th percentile	MET Summary Lamar University Biology department MET this expectation as about 53.84% or 14/26 of Lamar students scored above the 50th percentile nationally for the total exam score.	Maintain Assessment Strategy We will maintain our strategy and watch this over the next two years.

nationally for total exam score. assessment data25-26_outcome 1.xlsx	assessment data25-26_outcome 1.xlsx Analysis As mentioned above we met this goal as 14/26 students scored above the 50th percentile for the AY25-26. While this is true, only 7/16 (43.75%) students in the fall 25 semester scored above the 50th percentile vs 7/10 or 70% of students in the spring 26 semester scoring above the 50th percentile nationally. This could be reflective of a recently implemented strategy of ensuring that the students took this exam in their final semester when they would have completed their Biology courses and would have gone through their course sequence. We will continue to watch this over the next two years as well.	
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Knowledge of Cell Biology

MEASURES	RESULTS	ACTIONS
National average comparison Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for the Cell Biology subscore and the Biochemistry and Cell Energetics and Cellular Structure, Organization, and Function assessment indicators. assessment data25-26_outcome 2.xlsx	MET Summary Lamar Biology students MET this expectation of 50% of our students scoring at or above the national average for <i>Cell Biology</i> sub score (15/26 or 57.7%). However, they DID NOT MEET the 50% expectation of students scoring at or above the national average for the <i>Biochemistry and Cell Energetics</i> sub category (12/26 or 46.13%). In the sub category of <i>Cellular Structure, Organization, and Function</i> Lamar Biology students MET the expectation of 50% student scoring at or above the national average (13/26 or 50%). This suggests that our students are at par with the national average for <i>Cellular Structure, Organization, and Function</i> but not for <i>Biochemistry and Cell Energetics</i>. assessment data25-26_outcome 2.xlsx Analysis I selected MET for this sub score as 50% of our students did score at or above the national average (15/26 or 57.7%). However upon closer inspection it is clear that our students performed better in the sub category of <i>Cellular Structure, Organization, and Function</i> (13/26 or 50% scored at or above the national average) compared to the <i>Biochemistry and Cell Energetics</i> sub category (12/26 or 46.13% scored at or above the national average). When we break this data down by the semesters then it is evident that	Maintain Assessment Strategy We will continue to maintain our assessment strategy to see if the changes made in 22-23 AY continues to lead to observed improvements in students performance.

	our Spring 26 cohort performed much better overall compared to the fall 25 cohort. In the 22-23 AY major revisions were made and implemented to the instructional unit for BIOL1406, the freshman course for Biology majors which exposes the students to these topics. The students take the ETS_MFE in their final semester suggesting that students who took BIOL1406 in Fall 22 took the ETS_MFE in the spring 26 semester. It appears that the changes made in 22-23 AY to BIOL1406 maybe paying dividends. We will keep this strategy and monitor this perceived improvement during the next academic year as well. In final analysis our students PARTLY MET our expectation of 50% of them scoring at or above the national average in these categories.	
50th percentile score Direct - Other Target At least 50% of Lamar biology students will score at or above the 50th percentile nationally for the Cell Biology subscore and the Biochemistry and Cell Energetics and Cellular Structure, Organization, and Function assessment indicators. assessment data25-26_outcome 2.xlsx	NOT MET Summary Lamar Biology DID NOT MEET the expectation of 50% our students scoring at or above the 50th percentile. From the data at the ETS_MFE it is clear that 10/26 or 38.5% of our students scored above the 50th percentile for the Cell Biology Sub score. However individual percentile data for student performance for the assessment indicators Biochemistry & Cell Energetics and Cellular Structure, Organization, and function are not available. Institutional data on these assessment indicators suggest that Lamar Biology department was at 52 percentile for the Biochemistry and Cell Energetics Assessment Indicator collectively and at 46 percentile for the Cellular Structure, Organization, Function assessment indicators. assessment data25-26_outcome 2.xlsx Analysis As mentioned earlier 38.5% of our students scored at or above the 50th percentile in Cell Biology subscore. So clearly the students fell short of performance on this section. However when we break this data down by semesters another picture emerges. While only 7/16 students or 44% of our students were at or above the 50th percentile for this subscore in the fall 25 semester, about 5/10 or 50% of our students were at the 50th percentile for the spring 26 semester. This section has been historically weak areas or performance for Lamar Biology students. During the reporting cycle for AY22-23 major revisions to the instructional units for BIOL1406 where these topics are covered were undertaken. The first students who were exposed to these changes entered during the fall 22 semester as freshman and would have been exposed to	Maintain Assessment Strategy We will continue to collect data on this subscore and assessment indicators to see if the changes made to BIOL1406 in AY22-23 are actually paying off. Initial indicators suggest that this maybe leading to better performance by our students.

	BIOL1406. These students would have graduated in spring 2026. This is reflected in the performance of 38.5% students scoring in the 50th percentile for the fall 25 semester vs the 50% students scoring in the 50th percentile. Over the next couple of years we will monitor these subscores to assess if the changes implemented in AY22-23 are actually paying dividends.	
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Knowledge of Molecular biology & Genetics

MEASURES	RESULTS	ACTIONS
National average comparison Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for the Molecular Biology and Genetics subscore and the Molecular Biology and Molecular Genetics assessment indicator. assessment data25-26 outcome 3.xlsx	MET Summary The Lamar Biology students MET the expectation that 50% of our students will score at or above the national average for Molecular Biology and Genetics subscore and for the Molecular Biology and Molecular Genetics assessment indicator. Out of the 26 students who took the exam, 15/26 or 57.7% of our students scored better than the national average. Similarly 57.7% or 15/26 students also scored greater than 50% on the assessment indicator Molecular Biology and Molecular Genetics. assessment data25-26 outcome 3.xlsx Analysis This area has been historically a strong area for our students as several of our students either have already taken Genetics or are co-enrolled while in their final semesters. Also, several students take Molecular Biology for their Cell/Molecular biology component. In the fall of 2025 the department hired a new geneticist and this course is being regularly offered every semester. It is possible that the hiring of this new geneticist has contributed to a better performance by our students in this section. When we look at the semesterly performance by our students then it becomes clear that the students in the spring 26 semester performed better compared to the fall 25 semester. For example, while 8/16 or 50% of our students scored better than the national average in fall 25, 7/10 or 70% of our students scored better than the national average in the subscore and the assessment categories of Molecular Biology and Molecular Genetics.	Maintain Assessment Strategy We will maintain the current assessment strategy and collect more data over the next couple of years. The hiring of the geneticist and some new faculty in the realm of genetics and molecular biology should further strengthen our student's performance.
50th percentile numbers	NOT MET Summary	Maintain Assessment Strategy

Direct - Other Target At least 50% of Lamar biology students will score at or above the 50th percentile nationally for the Molecular Biology and Genetics subscore and the Molecular Biology and Molecular Genetics assessment indicator. assessment data25-26 outcome 3.xlsx	Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or above the 50th percentile. Of the 26 students who took the exam, 12/26 or 46% of our students scored at or above the 50th percentile. However when looked at the individual semesters, 50% of our students performed at the 50th percentile. For example, in the fall 25 semester 8/16 students or 50% scored at the 50th percentile or better compared to spring 26 semester where 5/10 or 50% of our students scored above the 50th percentile. assessment data25-26 outcome 3.xlsx Analysis Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or above the 50th percentile. Of the 26 students who took the exam, 12/26 or 46% of our students scored at or above the 50th percentile for the academic year. However when looked at the individual semesters, 50% of our students performed at the 50th percentile. For example, in the fall 25 semester 8/16 students or 50% scored at the 50th percentile or better compared to spring 26 semester where 5/10 or 50% of our students scored above the 50th percentile. This is indicative of strong performance in this area by our students. While overall performance in this subscore did not meet the 50% threshold, the assessment indicator Molecular Biology and Molecular Genetics for the institution performed a lot better compared to the national average. The institution as a whole performed much better and had a percentile rank of 81 on this assessment indicator suggesting that when compared to other institutions nationally we performed much better. We believe that the hiring of new faculty in this area will continue to bear fruit in the next few years.	At this point we will maintain the assessment strategy and continue to collect data over the next year to see if the hiring of new faculty in this area makes a difference.
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Knowledge of Organismal Biology

MEASURES	RESULTS	ACTIONS
National ranking comparison Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for the Organismal Biology subscore and the	MET Summary Lamar Biology MET this expectation as 15/26 or 57.7% of our students scored at or above the national average for this subscore. Of the 16 students registered in the fall 25 semester 10/16 students or 62.5% of our students scored at or above the national average. In the spring 26	Maintain Assessment Strategy Since our students appear to be performing very well in this area, we will maintain our strategy and examine the reasons for the lack of performance in the organismal -animals assessment indicator.

Organismal – Animals and Organismal – Plants assessment indicators. assessment data25-26 outcome 4.xlsx	semester 5/10 or 50% of the students scored above the national average. For the assessment indicator Diversity of Organisms, 16/26 or 61.5% of students scored above the national average. These numbers were 9/16 or 56% in the fall 25 semester and 7/10 or 70% in the spring semester for this assessment indicator. For the assessment indicator organismal animals, 10/26 or 38.4% of our students scored at or above the national average with 7/16 or 44% in the fall 25 semester and 3/10 or 30% in the spring 26 semester. For assessment indicator organismal plants, 20/26 or 77% of our students scored above the national average for the year, with 14/16 or 87.5% for the fall 25 semester and 6/10 or 60% in the spring 26 semester. assessment data25-26 outcome 4.xlsx Analysis Lamar Biology MET this expectation comfortably as 15/26 or 57.7% of our students scored at or above the national average for this subscore. Of the 16 students registered in the fall 25 semester 10/16 students or 62.5% of our students scored at or above the national average. In the spring 26 semester 5/10 or 50% of the students scored above the national average. This is strong performance and is possibly the result of very strong performance in the assessment indicator Organismal Plants. For the assessment indicator Diversity of Organisms, 16/26 or 61.5% of students scored above the national average. These numbers were 9/16 or 56% in the fall 25 semester and 7/10 or 70% in the spring semester for this assessment indicator. For the assessment indicator organismal animals, 10/26 or 38.4% of our students scored at or above the national average with 7/16 or 44% in the fall 25 semester and 3/10 or 30% in the spring 26 semester. For assessment indicator organismal plants, 20/26 or 77% of our students scored above the national average for the year, with 14/16 or 87.5% for the fall 25 semester and 6/10 or 60% in the spring 26 semester. The strong performance in the Organismal Plants assessment indicator is possibly a result of a new hire in the area of Botany who has started to offer our core in Botany and also other related courses. We intend to monitor this over the next few semesters.	
Numbers in the 50th percentile Direct - Other Target	NOT MET Summary The Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or greater than the 50th	Gather Additional Data IN PROGRESS It is clear that the students did not perform very well in the Animals section of the assessment indicator. This has been consistently an area of weak performance.

At least 50% of Lamar biology students will score at or above the 50th percentile nationally for the Organismal Biology subscore and the Organismal – Animals and Organismal – Plants assessment indicators. assessment data25-26_outcome 4.xlsx	percentile. Of the 26 students who took the test only 10/26 or 38.5% of our students scored at or above the 50th percentile for the Organismal Biology subscore. When we break this number down with the semesters, then 7/16 or 43.75 percent of students scored at or above the 50th percentile in the fall 25 semester and 3/10 or 30% of our students scored at or above the 50th percentile in the spring 26 semester. As an institution Lamar biology was in the 88th percentile for the Diversity of Organisms assessment indicator, 43rd percentile for the Organism - Animals indicator, and 96th percentile for the Organisms - Plants indicator assessment data25-26_outcome 4.xlsx Analysis The Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or greater than the 50th percentile. Of the 26 students who took the test only 10/26 or 38.5% of our students scored at or above the 50th percentile for the Organismal Biology subscore. When we break this number down with the semesters, then 7/16 or 43.75 percent of students scored at or above the 50th percentile in the fall 25 semester and 3/10 or 30% of our students scored at or above the 50th percentile in the spring 26 semester. As an institution Lamar biology was in the 88th percentile for the Diversity of Organisms assessment indicator, 43rd percentile for the Organism - Animals indicator, and 96th percentile for the Organisms - Plants indicator. While as an institution Lamar Biology did very well in plants and diversity of organisms, it did not do well in the animals assessment indicator.	We will collect data with respect to the 26 students who took the ETS_MFE and assess how many of these students were exposed to upper level Animals courses prior to them taking the ETS_MFE. We will also look at our freshman BIOL1407 course to see if our students are being adequately exposed to the animal biology. Recommended Due Date: 11/30/2026
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Knowledge of Population Biology, Evolution and Ecology

MEASURES	RESULTS	ACTIONS
National average comparison Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for the Population Biology, Evolution, and Ecology	MET Summary Lamar Biology MET this goal of 50% of our students scoring at or above the national average. Of the 26 students who took the ETS_MFE, 15/26 or 57.7% of our students scored at or above the national average. Of the 16 students who took this exam in the fall 25 semester, 7/16 or 43.75% scored at or above the national	Maintain Assessment Strategy At this point of time we will maintain this strategy and collect data in future semesters to see if changes implemented in 22-23 are bearing fruit along with the stand alone course offering in Evolution.

subscore and the Population Genetics and Evolution and Ecology assessment indicators. assessment data25-26 outcome 5.xlsx	average. In the spring 26 semester, 8/10 or 80% of our students scored above the national average. In the assessment indicator Population Genetics and Evolution, 13/26 or 50% of students scored at or above the national average with 7/16 or 43.75% and 6/10 or 60% scoring at or above the national average in this assessment indicator during the fall 25 and spring 26 semesters respectively. In the assessment indicator Ecology, 18/26 or 69.2% scored above the national average with 10/16 or 62.5% and 8/10 or 80% of our students scoring at or above the national average during the fall 25 and spring 26 semesters respectively. assessment data25-26 outcome 5.xlsx Analysis Lamar Biology MET this goal of 50% of our students scoring at or above the national average. Of the 26 students who took the ETS_MFE, 15/26 or 57.7% of our students scored at or above the national average. Of the 16 students who took this exam in the fall 25 semester, 7/16 or 43.75% scored at or above the national average. In the spring 26 semester, 8/10 or 80% of our students scored above the national average. In the assessment indicator Population Genetics and Evolution, 13/26 or 50% of students scored at or above the national average with 7/16 or 43.75% and 6/10 or 60% scoring at or above the national average in this assessment indicator during the fall 25 and spring 26 semesters respectively. In the assessment indicator Ecology, 18/26 or 69.2% scored above the national average with 10/16 or 62.5% and 8/10 or 80% of our students scoring at or above the national average during the fall 25 and spring 26 semesters respectively. In the AY22-23, the biology department implemented revisions of our freshman biology course sequence (BIOL1406, 1407) to strengthen the areas that are tested in these categories. The first cohort that would have been exposed to this revised course in Fall 22 is now graduating in the spring 26 semester. That gains are being made is evident in the strong performance of students on the assessment indicators in the spring 26 semester. Furthermore, a standalone Evolution course as an elective was offered for the first time to our students in the spring 26 semester. The strong performance by the students in the spring semester could be indication that this strategy is working.	
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Number in 50th percentile Direct - Other Target At least 50% of Lamar biology students will score at or above the 50th percentile nationally for the Population Biology, Evolution, and Ecology subscore and the Population Genetics and Evolution and Ecology assessment indicators assessment data25-26_outcome 5.xlsx	NOT MET Summary Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or above the 50th percentile. During the period of assessment 8/26 students or 30.77% of students scored in the 50th percentile for the Population Biology, Evolution and Ecology subscore. Of this 7/16 or 43.75% of students and 3/10 or 30% of our students scored at or above the 50th percentile for the fall25 and spring26 semester respectively. Institutionally, the Population Genetics and Evolution assessment indicators suggest that Lamar Biology scored in the 49th percentile for this indicator and 68 percentile for the Ecology assessment indicator. assessment data25-26_outcome 5.xlsx Analysis Lamar Biology DID NOT MEET the expectation that 50% of our students will score at or above the 50th percentile. During the period of assessment 8/26 students or 30.77% of students scored in the 50th percentile for the Population Biology, Evolution and Ecology subscore. Of this 7/16 or 43.75% of students and 3/10 or 30% of our students scored at or above the 50th percentile for the fall25 and spring26 semester respectively. The department's current action plan was implemented in the AY22-23 in the form of recalibrated freshman biology courses like BIOL1406, 1407. This is still early days to see a correlative effect for this assessment section. We will collect data over the next few semesters to see if the changes are making any difference. Furthermore, it is possible that our benchmark for these assessments and assessment indicators is unrealistic given that Lamar Biology as an institution performed much better in the institutional assessment for these assessment indicators. The data on this is provided below and clearly indicates that in Population Genetics and Evolution assessment indicators we are very close to the 50th percentile benchmark. Also, for Ecology assessment indicator Lamar Biology performed much better than the national mean by scoring in the 68th percentile. Institutionally, the Population Genetics and Evolution assessment indicators suggest that Lamar Biology scored in the 49th percentile for this indicator and 68th percentile for the Ecology assessment indicator.	Revise Benchmark / Target IN PROGRESS We will decrease the percentile score from 50% of our students scoring at or above the 50th percentile to 45% of our students at or above the 50th percentile. In the spring 26 semester a standalone course in evolution was offered to our students as an elective. Over the next few semesters we will continue to collect data on the performance of our students. We will also consider an Ecology track as previously suggested but could not be implemented due to change in leadership. We will try to implement it in the near future. Recommended Due Date: 05/28/2027
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Critical thinking skills

MEASURES	RESULTS	ACTIONS
National average comparison Direct - Other Target At least 50% of Lamar biology students will score at or above the national average for the Analytical Skills assessment indicator. assessment data25-26_outcome 6.xlsx	MET Summary Lamar Biology MET the benchmark of 50% of our students scoring at or above the national average. Out of the 26 students who took the ETS_MFE exam 15/26 or 57.7% of the students scored at or above the national average for the Analytical Skills subscore. When looking at the data for the fall and spring semesters, 9/16 or 56.25% of our students in the fall 25 and 6/10 or 60% of our students in the spring 26 semester scored at or above the national mean. assessment data25-26_outcome 6.xlsx Analysis Lamar Biology MET the benchmark of 50% of our students scoring at or above the national average. Out of the 26 students who took the ETS_MFE exam 15/26 or 57.7% of the students scored at or above the national average for the Analytical Skills subscore. When looking at the data for the fall and spring semesters, 9/16 or 56.25% of our students in the fall 25 and 6/10 or 60% of our students in the spring 26 semester scored at or above the national mean.	Maintain Assessment Strategy We will continue to impart analytical skills in the freshman lecture and labs and to the extent possible in other courses in biology.
Number in 50th percentile Direct - Other Target At least 50% of Lamar biology students will score at or above the 50th percentile nationally for the Analytical Skills assessment indicator. assessment data25-26_outcome 6.xlsx	MET Summary Lamar Biology MET the benchmark of 50% of our students scoring at or above the national average. Out of the 26 students who took the ETS_MFE exam 15/26 or 57.7% of the students scored at or above the national average for the Analytical Skills subscore. When looking at the data for the fall and spring semesters, 9/16 or 56.25% of our students in the fall 25 and 6/10 or 60% of our students in the spring 26 semester scored at or above the national mean. assessment data25-26_outcome 6.xlsx Analysis Lamar Biology institutionally scored in the 57th percentile for this assessment indicator, suggesting that our students are getting adequate exposure to analytical skills.	Maintain Assessment Strategy We will continue to maintain this assessment strategy and gather data over the next few semesters.