

Texas State University

Outcomes Report

General Information

Academic Year:	2022-2023
College:	Science and Engineering
Department:	Biology
Program:	BIO 1320
Program Code:	3.00
Outcome Type:	General Education
Degree:	Other
Coordinator/Contact:	Andrea Aspbury
Status:	Data Entry Closed

Mission Statement

The mission of the general education core curriculum at Texas State University is to provide students with a broad academic foundation in the component areas of communication; mathematics; life and physical sciences; language, philosophy and culture; creative arts; American history; government/political science; and social and behavioral sciences.

Life and Physical Sciences Mission:

The mission of the life and physical sciences component is to focus on describing, explaining, and predicting natural phenomena using the scientific method.

Evidence of Improvement

This GECC course showed gains in the outcomes associated with quantitative reasoning (outcome 4), where we saw a 9.1% gain in students meeting targets set by faculty. We suggest that these improvements may be linked to the use of more active learning techniques through the semester, as implemented by last year's action plan. We also saw an improvement in student's communication (outcome 3) and teamwork skills (outcome 5). The 1.9% increase in students meeting the target of improvement is likely due to having more in class engagement and active learning activities.

Action Plan

Since critical reasoning and scientific principles skills is a concern (outcomes 1 and 2 are very well below target, and have not shown improvement since last year), faculty will develop more active learning activities on critical thinking, like what has been done to promote quantitative reasoning skills. In addition, activities will be developed such that they can be implemented both in online sections and in face-to-face sections. Other lessons will also be designed that can involve more active learning and group work in the face-to-face setting to continue to promote communication and teamwork skills and help improve all student outcomes.

Outcome 1

Students will describe interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

Outcome 1 - Method 1

Students in all sections of BIO 1320 (Modern Biology) will complete 5 exam questions that focus on basic scientific principles. For this outcome, faculty have set the target that all students will score 80% or above on the questions covering basic scientific principles

Outcome 1 - Method 1 - Result

(Note that the same assessment items also cover Outcome 2, Critical Thinking): In Fall 2022 414 students in two face to face of BIO 1320 (Modern Biology) completed the assessment that had 5 exam questions that focused on basic scientific principles. Of these, 275 (66.4%) scored 80% or above on the assessment items. The mean score on the assessment items was 71.5%. Also, in Fall 2022 there were 39 students in two online sections (traditionally taught via distance learning and are small sections). Of these students, 24 (61.5%) scored 80% or above on the assessment items. The mean score on the assessment items was 75%.

In Spring 2023, 442 students in two face to face sections of BIO 1320 (Modern Biology) completed the assessment that had 5 exam questions that focused on basic scientific principles. Of these, 318 (71.9%) scored 80% or above on the assessment items. The mean score on the assessment items was 74%. Also, in Spring 2023 there were 39 students in two online sections (traditionally taught via distance learning and are small sections). Of these students, 33 (84.6%) scored 80% or above on the assessment items. The mean score on the assessment items was 84%. Overall, across all students for the 2022-2023 academic year, 71.1% of students scored 80% on the assessment items covering basic scientific principles, which is less than the faculty target of all students scoring 80%. This percentage is down from 2021-2022 (84.4%) but higher than the 2020-2021 average of 69%. We think these trends might be due to Covid-19 drops in scores in 20/21, then increases due to instructors giving more leniency in 21/22 as we returned to more in person campus life. In 22/23 more faculty have returned to pre-Covid-19 course policies, so this may be

affecting student success.

Outcome 2

Competency: Critical Thinking

Students will demonstrate creative thinking innovation, inquiry, and analysis, evaluation and synthesis of information.

Outcome 2 - Method 1

Students in all sections of BIO 1320 (Modern Biology) will complete 5 exam questions that require critical thinking. For this outcome, faculty have set the target that all students will score 80% or above on the questions requiring critical thinking.

Outcome 2 - Method 1 - Result

(Note that the same assessment items also cover Outcome 1, Scientific Principles): In Fall 2022 414 students in two face to face of BIO 1320 (Modern Biology) completed the assessment that had 5 exam questions that focused on critical thinking. Of these, 275 (66.4%) scored 80% or above on the assessment items. The mean score on the assessment items was 71.5%. Also, in Fall 2022 there were 39 students in two online sections (traditionally taught via distance learning and are small sections). Of these students, 24 (61.5%) scored 80% or above on the assessment items. The mean score on the assessment items was 75%.

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Outcome 3

Competency: Communication

Students will effectively develop, interpret and express ideas through written, oral and visual communication.

Outcome 3 - Method 1

Students in BIO 1320 (Modern Biology) will take an assessment (title: Homework 1) and then in class after this assessment is completed individually, they will form teams and discuss the assessment items with one another, such that students will be able to demonstrate their oral communication skills in the form of persuasive argument. If students in groups are able to teach the material to others in their group, then faculty expect that this communication will result in an increase in student scores on the same assessment items that will be delivered within the same assessment delivered after the group-work (title: Homework 2). Faculty have set the target that all students improve their score between the Homework 1 and 2 Assessments.

Outcome 3 - Method 1 - Result

(Note that the same assessment method is also used for Outcome 5, Teamwork): In Fall 2022 355 students in two face to face sections of BIO 1320 (Modern Biology) completed both Homework 1 and then Homework 2, with the same assessment items, after working in groups. Of these, 169 (47.6%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 12.5%. Also, in Fall 2022 there were 4 students in two online sections (traditionally taught via distance learning and are small sections) that completed both Homework 1 and then Homework 2, after working in groups. Of these, 3 (75%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 17.5%

In Spring 2023 343 students in four face to face sections of BIO 1320 (Modern Biology) completed both Homework 1 and then Homework 2, with the same assessment items, after working in groups. Of these, 148 (43.1%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 7%. Also, in Spring 2023 there were 39 students in two online sections (traditionally taught via distance learning and are small sections), but only 11 completed both Homework 1 and then Homework 2, after working in groups. Of these, 6 (54.5%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 11.5%

Overall, across all students for the 2022-2023 academic year, 55.1% of students met the faculty target of all students improving their grades from Homework 1 to Homework 2, after group communication and teamwork. This is an increase from the prior year value of 53.2 (and the previous year of 36.4%) of students meeting the target that all students improve their score between the Homework 1 and 2 Assessments.

Outcome 4

Competency: Empirical and Quantitative Skills

Students will manipulate and analyze numerical data or observable facts resulting in informed conclusions.

Outcome 4 - Method 1

Students in BIO 1320 (Modern Biology) will take an assessment (title: Homework 1) which includes 4 questions that focus on quantitative

reasoning. For this outcome, faculty have set the target that all students will score 80% or above questions requiring quantitative reasoning.

Outcome 4 - Method 1 - Result

In Fall 2022 409 students in two face to face sections of BIO 1320 (Modern Biology) completed the assessment that had 4 exam questions that focused on quantitative reasoning. Of these, 141 (34.5%) scored 80% or above on the assessment items. The mean score on the assessment items was 46.4%. Also, in Fall 2022 there were 25 students in two online sections (traditionally taught via distance learning and are small sections) that completed the assessment with 4 exam questions focused on quantitative reasoning. Of these students, 5 (20%) scored 80% or above on the assessment items. The mean score on the assessment items was 30%.

In Spring 2023 418 students in two face to face sections of BIO 1320 (Modern Biology) completed the assessment that had 4 exam questions focused on quantitative reasoning. Of these, 137 (32.8%) scored 80% or above on the assessment items. The mean score on the assessment items was 56%. Also, in Spring 2023 there were 27 students in two online sections (traditionally taught via distance learning and are small sections) that completed the assessment with 4 exam questions focused on quantitative reasoning. Of these students, 14 (51.9%) scored 80% or above on the assessment items. The mean score on the assessment items was 65.5%.

Overall, across all students for the 2022-2023 academic year, 34.8% of students scored 80% on the assessment items covering quantitative, which is less than the faculty target of all students scoring 80%. This percentage is higher than it has been in the previous two academic years (21/22: 25.7%, 21/22: 32.25%). We attribute this success in quantitative reasoning to the action plan focusing on developing more active learning activities that address quantitative reasoning skills.

Outcome 5

Competency: Teamwork

Students will recognize different points of view and work effectively with others to support a shared purpose or goal.

Outcome 5 - Method 1

After students in BIO 1320 (Modern Biology) will take an assessment (title: Homework 1) and then in class after this assessment is completed individually, they will form teams and discuss the assessment items with one another, such that students will be able to demonstrate an ability to work effectively with others to improve their grade on the assessment items. If students in groups are able to teach the material to others in their group, then faculty expect that this form of teamwork will result in an increase in student scores on the same assessment items that will be delivered after the group-work (title: Homework 2). Faculty have set the target that all students improve their score between the Homework 1 and 2 Assessments.

Outcome 5 - Method 1 - Result

(Note that the same assessment method is also used for Outcome 3, Communication In Fall 2022 355 students in two face to face sections of BIO 1320 (Modern Biology) completed both Homework 1 and then Homework 2, with the same assessment items, after working in groups. Of these, 169 (47.6%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 12.5%. Also, in Fall 2022 there were 4 students in two online sections (traditionally taught via distance learning and are small sections) that completed both Homework 1 and then Homework 2, after working in groups. Of these, 3 (75%) showed an improvement in their score from Homework 1 to Homework 2. The average score for the students that took both assessments increased by 17.5%

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Overall, across all students for the 2022-2023 academic year, 55.1% of students met the faculty target of all students improving their grades from Homework 1 to Homework 2, after group communication and teamwork. This is an increase from the prior year value of 53.2 (and the previous year of 36.4%) of students meeting the target that all students improve their score between the Homework 1 and 2 Assessments.

Approval History

Approval History Event

Outcomes Approved Level 1
Outcomes Approved Level 2
Outcomes Audit Report Submitted
Results Approved Level 1
Results Approved Level 2
Results Audit Report Submitted

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