**5B Biological Sciences Assessment Report**

Dashboard link:
B2
Student Survey dashboard link

# PURPOSE AND BACKGROUND

The overarching purpose of assessment in General Education (GE) is to enhance and improve undergraduate student learning experiences afforded by the GE program at Cal State East Bay. Looking beyond the CSU Chancellor's Office and WASC accreditation requirements which necessitate GE assessment (EO 1100, Section 6.2.5), the true value of GE assessment extends from how we collaboratively make meaning of assessment results to inform improvements in GE.

GE learning outcomes are aligned to the Institutional Learning Outcomes (ILOs), WASC Core Competencies, and AAC&U's LEAP Essential Learning Outcomes, all of which express the knowledge, skills, and values CSUEB graduates are expected to attain. Collectively, CSUEB's GE learning outcomes and ILOs distinguish who we are, what we value, and how we expect students to demonstrate their learning. Thus, the assessment of GE outcomes enables our campus community to gauge how effective we are in helping our students attain these outcomes.

The General Education Long-term Assessment Plan for 2022-2027 22-23 CAPR 39 (which supercedes 18-19 CAPR 2) details a consistent, rigorous assessment process.

# THE PROCESS (H1)

To date, General Education Area B2 (5B) Biological Sciences has never been assessed at East Bay. In Spring 2023, the Office of General Education asked faculty who were teaching our Biological Sciences to revise the learning outcomes for these areas to better align with our teaching practices. The faculty then created the first rubric (see Appendix below for learning outcomes and rubric).

In Fall 2023 GE collected assignments from a few Area B2 courses. During collection we realized there were issues with the assignments and so the collection and assessment itself was delayed by an academic year. Five unfunded assessors from

both B1 or B2 were chosen through CAPR's GE Assessment subcommittee and assessment took place in Spring 2025. Assignments were pulled from two Biology courses (five sections) and one Kinesiology course (six sections). Ten assignments were randomly selected from each section and each assignment was assessed by two trained assessors. Results were sent to Institutional Effectiveness and Research, who pulled student demographic data and then created the dashboard with our results.

# ASSESSMENT RESULTS (H1)

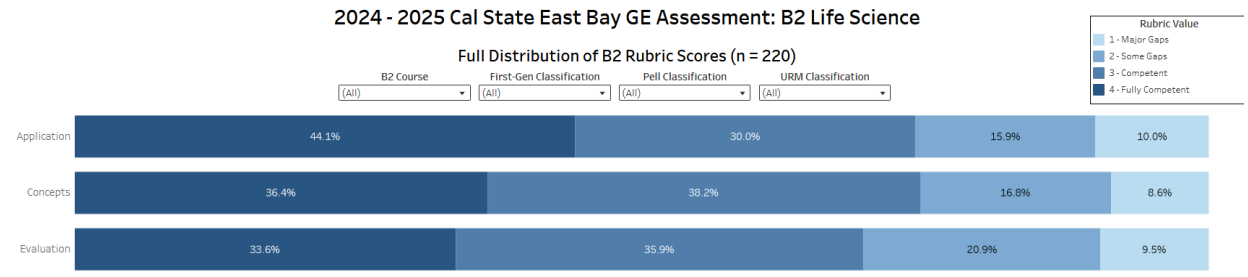
## B2(5B) Biological Sciences

Before looking at the results, it should be noted that the assessment team had very good interrater reliability scores. The interrater reliability shows that the five assessors gave student assignments the same scores or a difference of 1 (i.e., one assessor gave an assignment a score of 3 in one category with the second assessor gave the same assignment, in the same category, a 4) in many cases.

89% 0 or 1 for Application
98% 0 or 1 for Concepts
88% 0 or 1 for Evaluation

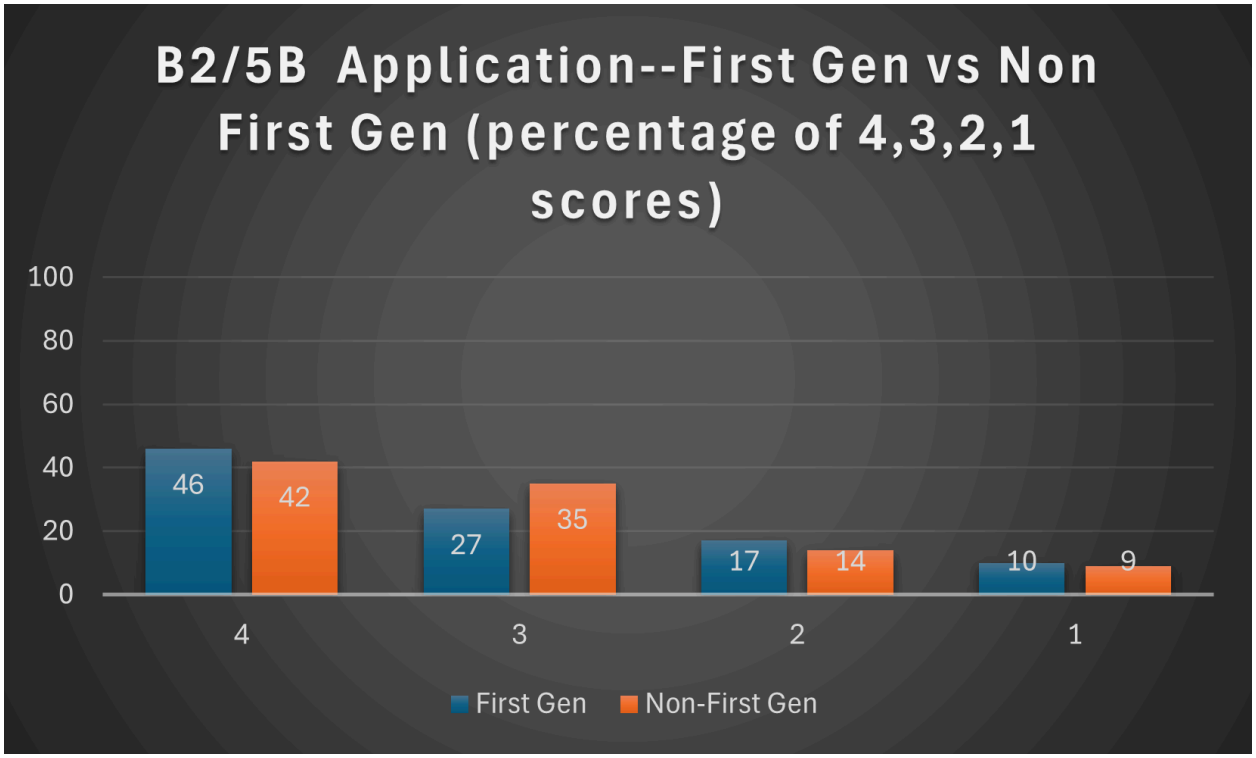
The rubric for B2 (5B) has three categories: Application ("Articulate knowledge of scientific concepts"), Concepts ("Evaluation of scientific theories, concepts, and/or interpretation of data," and Evaluation ("Use scientific practices, methods, arguments and/or describe accepted standards/ethics associated with scientific inquiry").

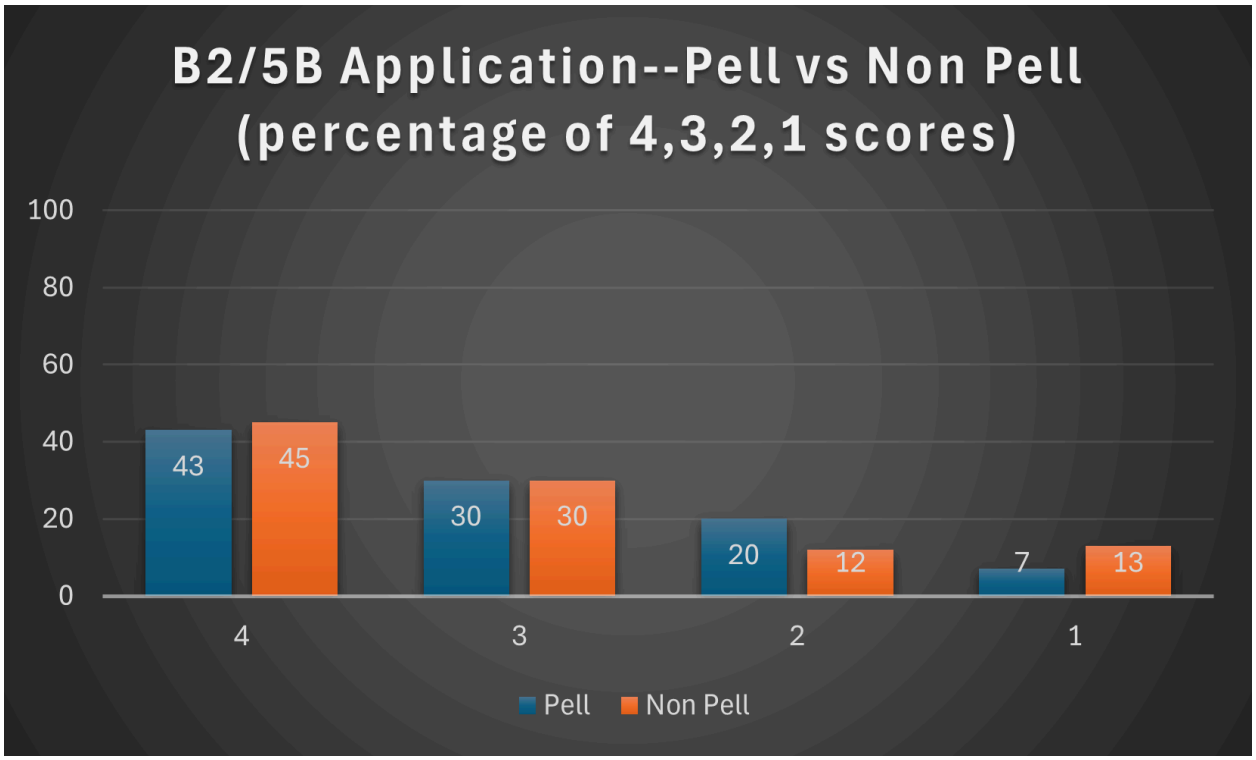
A proficient score is a score of 3 and above and we are looking for 75% and above. Our overall scores show that 74.1% in Application, 74.6% in Concepts, while Evaluation is at 69.5%. This shows that most of our students are scoring very close to proficiency in Application and Concepts, while a smaller group are proficient in Evaluation (interestingly, students in B1 assessment also showed a drop in proficiency in Evaluation). 10% showed major gaps in Application, 8.6% in Concepts, and 9.5% in Evaluation:

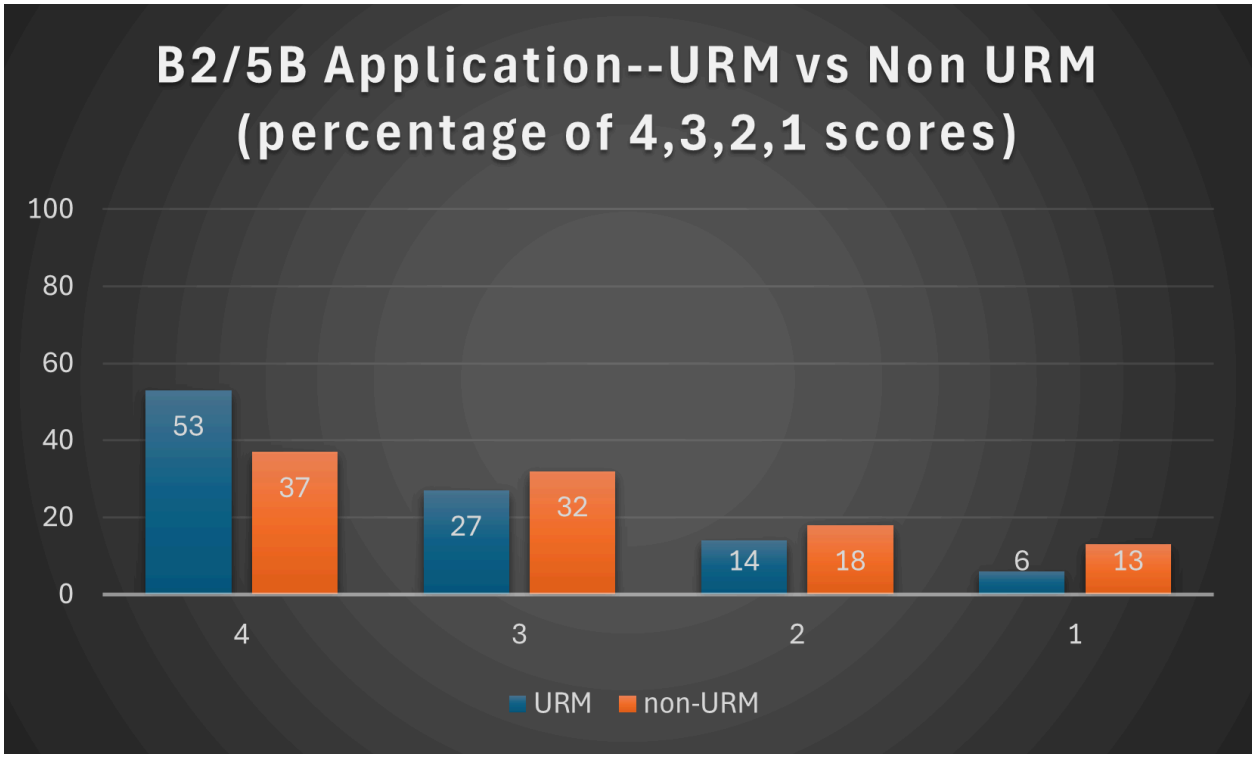


The set of data below shows the percentage of scores (4,3,2,1) for each of the three areas (Application, Concepts, and Evaluation), broken down by First Gen vs Non First Gen, Pell vs Non Pell, and URM vs Non URM.

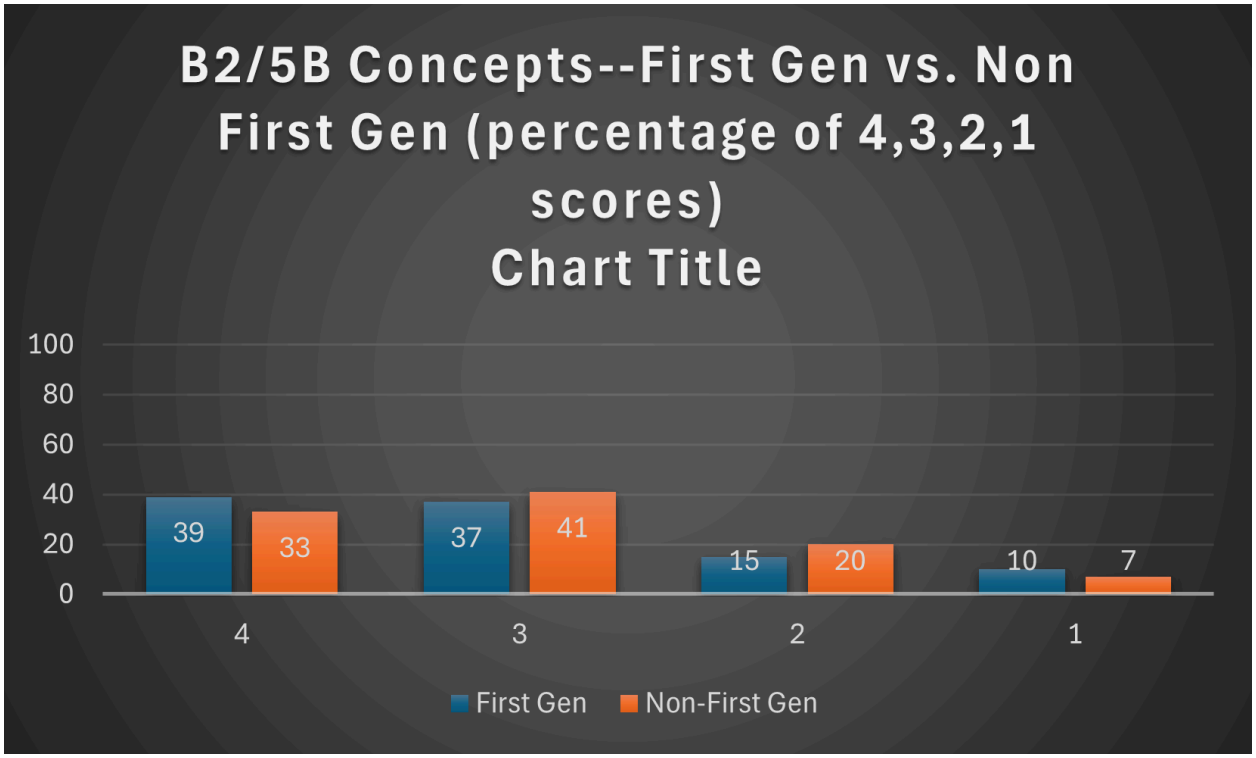
**Application Criterion**

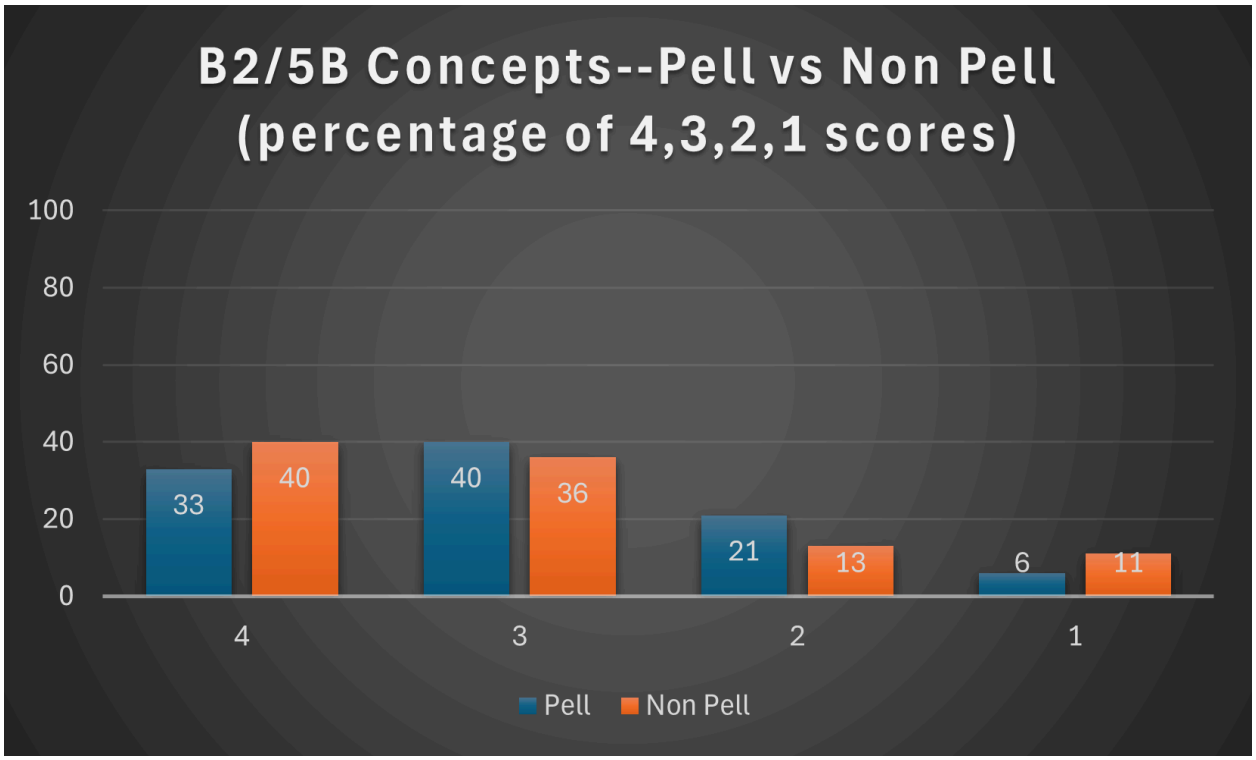

B2/5B Application--First Gen vs Non First Gen (percentage of 4,3,2,1 scores)
100
80
60
40
20
0
46
42
27
35
17
14
10
9
4
3
2
1
First Gen
Non-First Gen

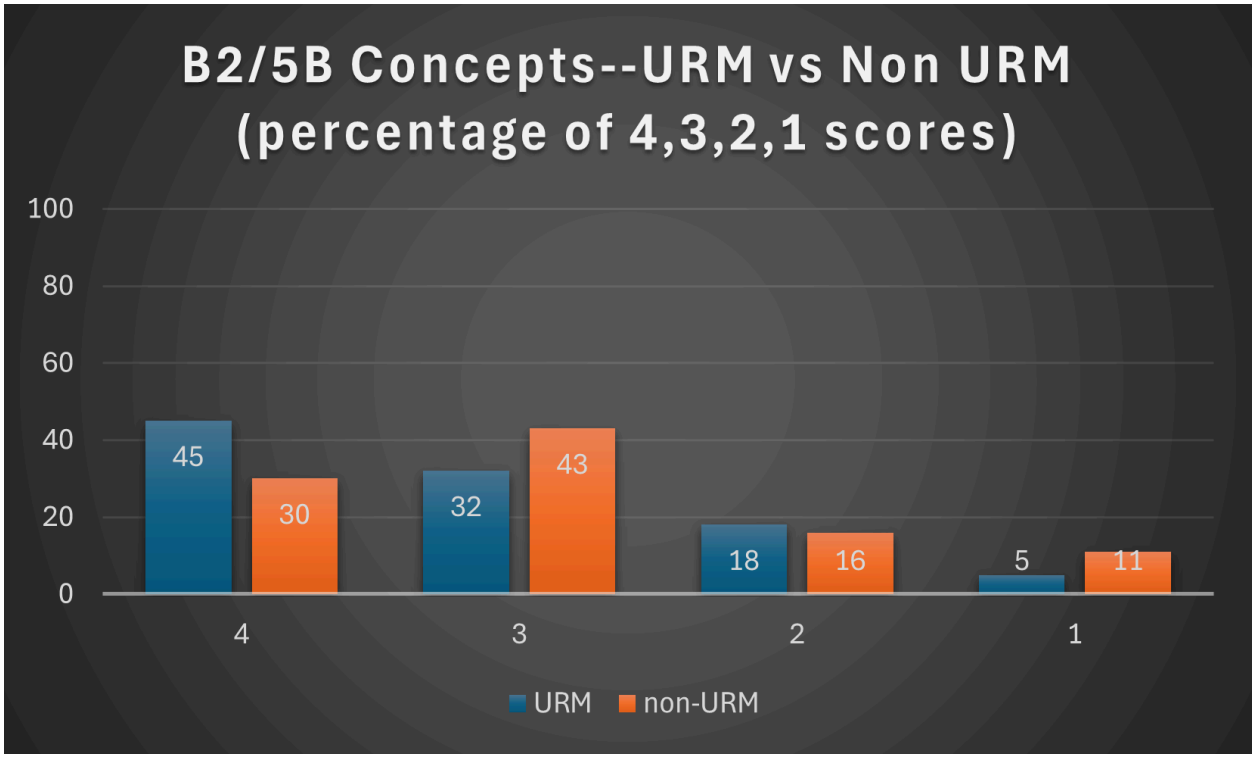

B2/5B Application--Pell vs Non Pell (percentage of 4,3,2,1 scores)
100
80
60
40
20
0
43
45
30
30
20
12
7
13
4
3
2
1
Pell
Non Pell



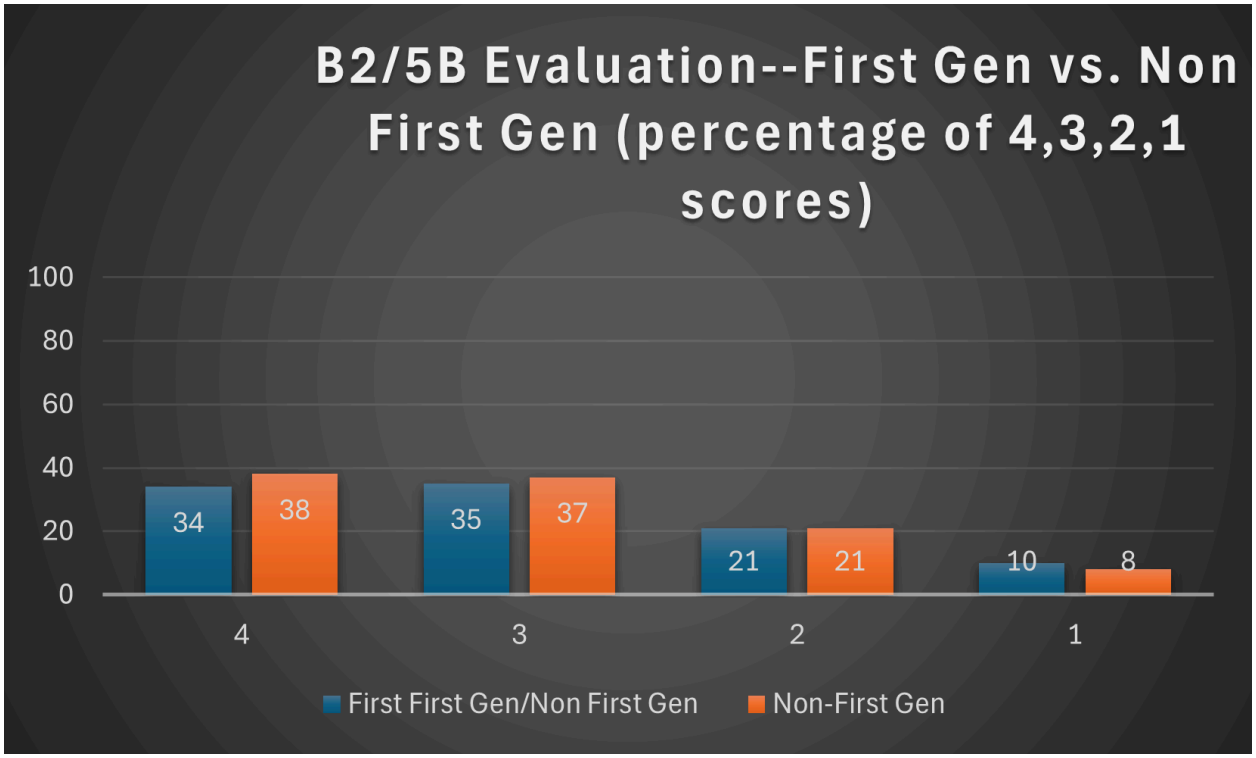

**Concepts Criterion**

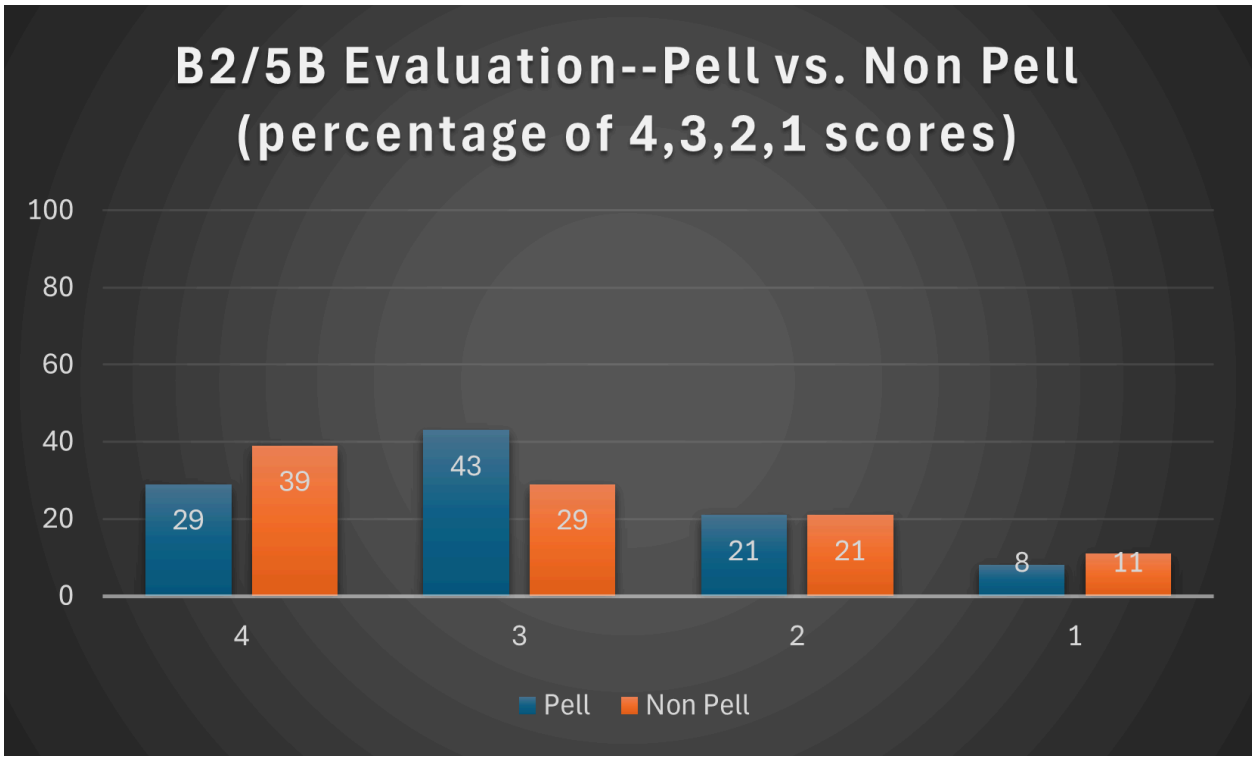

B2/5B Concepts--First Gen vs. Non First Gen (percentage of 4,3,2,1 scores)
Chart Title
100
80
60
40
20
0
39
33
37
41
15
20
10
7
4
3
2
1
First Gen
Non-First Gen

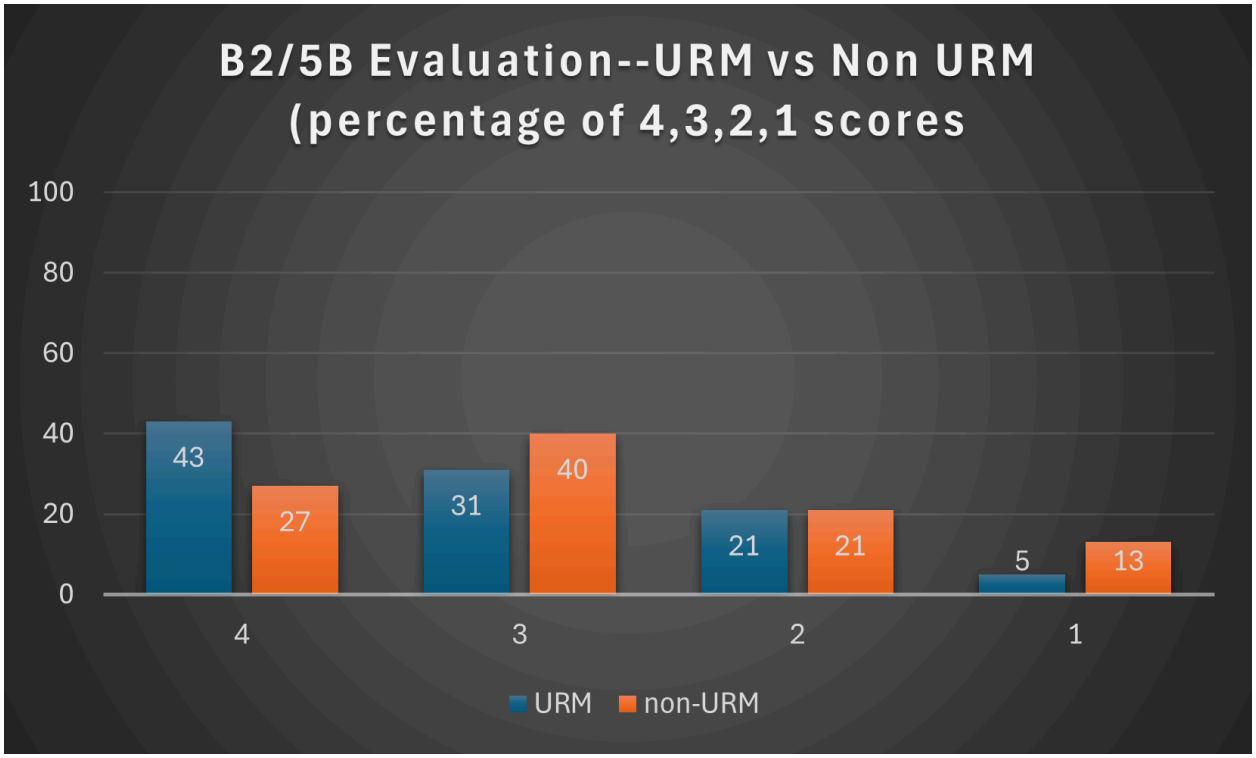

B2/5B Concepts--Pell vs Non Pell (percentage of 4,3,2,1 scores)
100
80
60
40
20
0
33
40
40
36
21
13
6
11
4
3
2
1
Pell
Non Pell




**Evaluation Criterion**

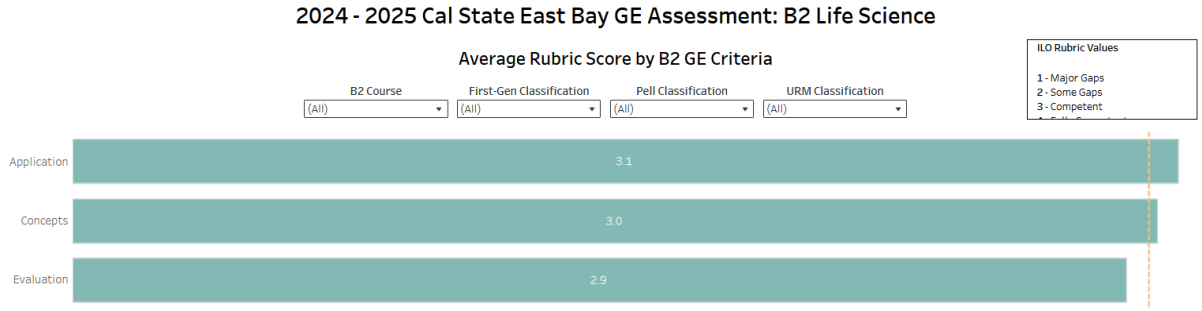

B2/5B Evaluation--First Gen vs. Non First Gen (percentage of 4,3,2,1 scores)
100
80
60
40
20
0
34
38
35
37
21
21
10
8
4
3
2
1
First First Gen/Non First Gen
Non-First Gen


B2/5B Evaluation--Pell vs. Non Pell (percentage of 4,3,2,1 scores)
100
80
60
40
20
0
29
39
43
29
21
21
8
11
4
3
2
1
Pell
Non Pell

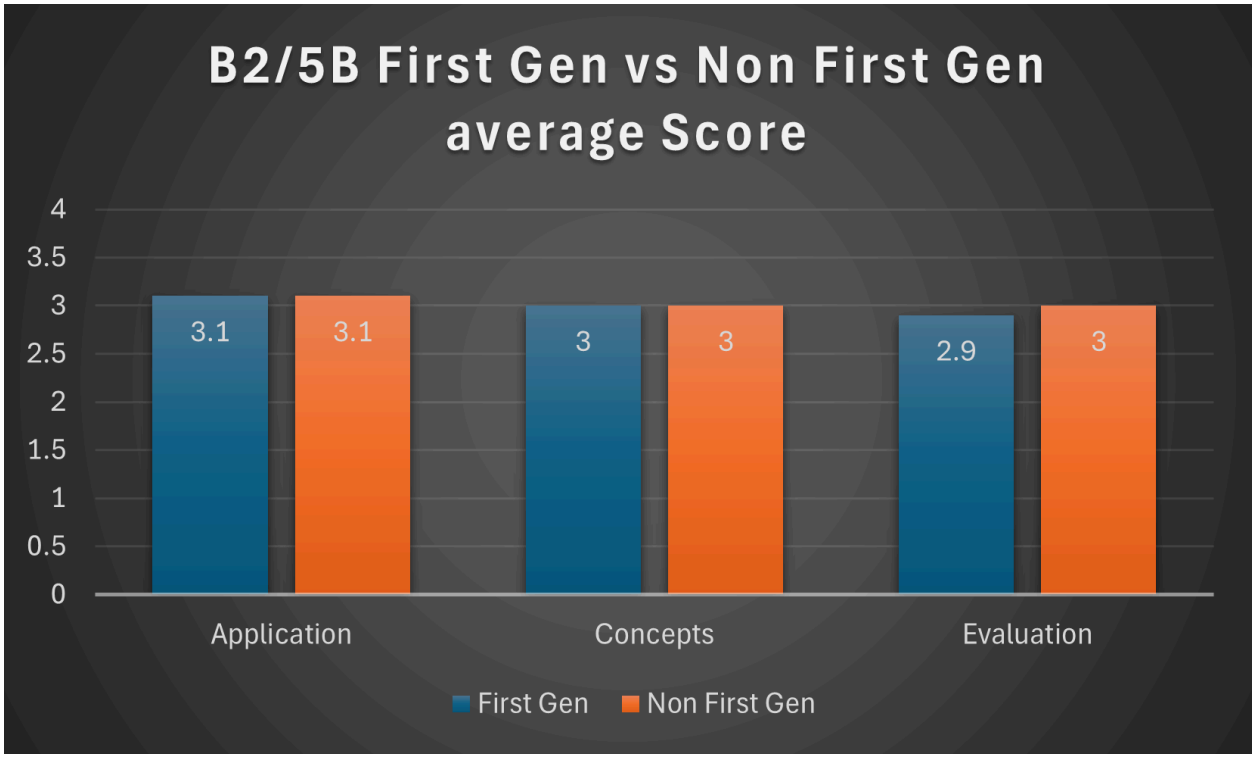


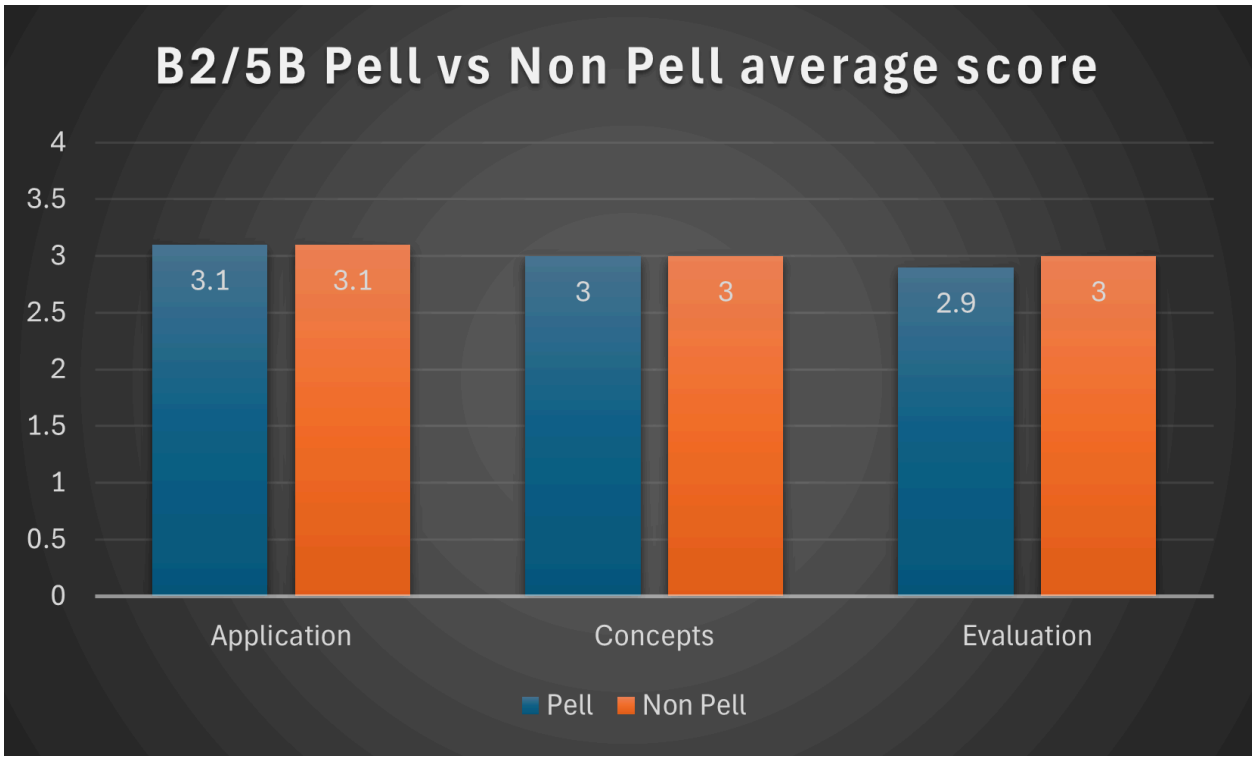

**Average Score**

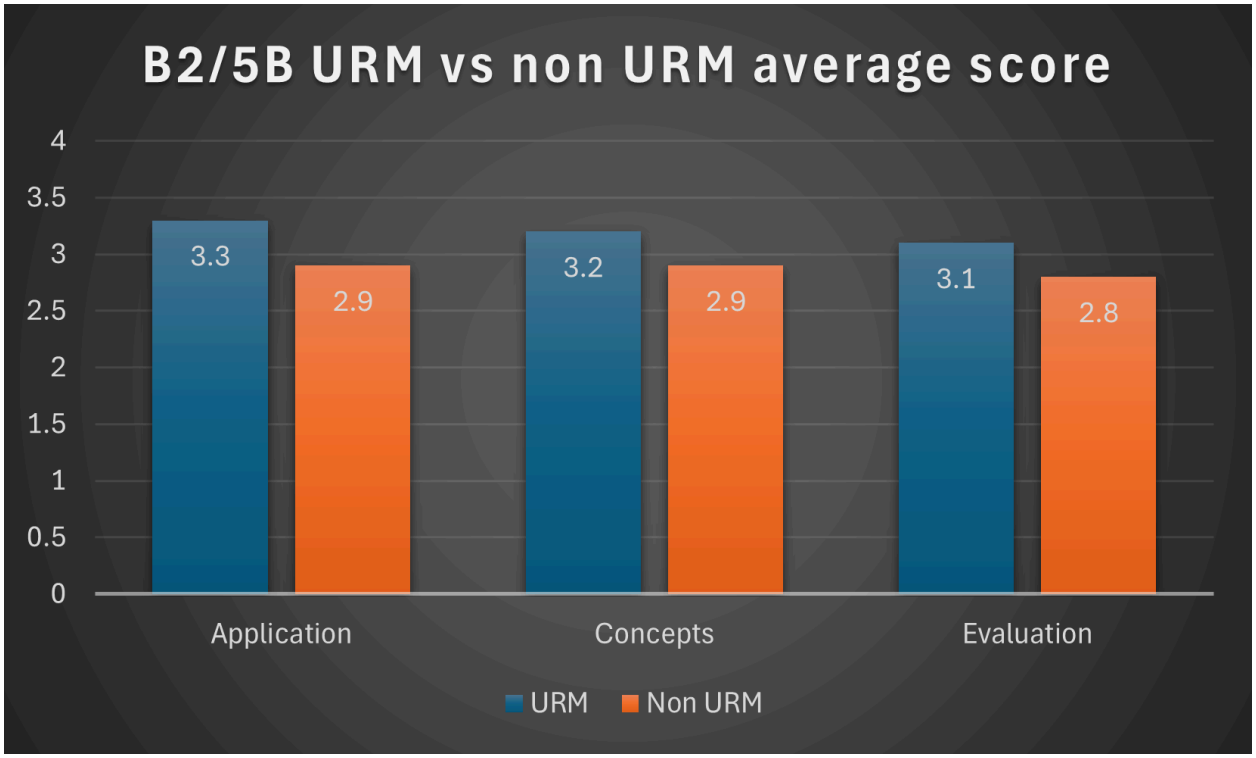
There is another way to look at the same data–if we look at the average score (combining 4,3,2, and 1) we see that for the most part, our students are proficient (rated at a score of 3 and higher). The average score for Evaluation is a 2.9.




We can break this average score data down further by student demographics. This shows that our Pell and First Gen students performing at the same rate as our non-Pell and non-First Gen students, while our URM students out-performed our non-URM students in terms of average scores in all three rubric criteria.


B2/5B First Gen vs Non First Gen average Score
4
3.5
3
2.5
2
1.5
1
0.5
0
3.1
3.1
3
3
2.9
3
Application
Concepts
Evaluation
First Gen
Non First Gen


B2/5B Pell vs Non Pell average score
4
3.5
3
2.5
2
1.5
1
0.5
0
3.1
3.1
3
3
2.9
3
Application
Concepts
Evaluation
Pell
Non Pell




# Student Survey Results for B2

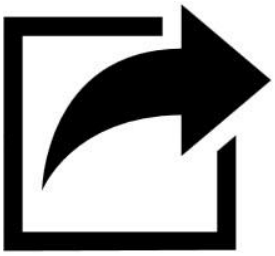
Students in the assessed sections were sent a survey asking them to comment on their perceived success (in terms of the learning outcomes) in the course. Here is the link to the dashboard with the results. Please click through the results as well as the second tab that reports results about specific questions.

# Selected Assessment Comment from faculty assessors

“It would be helpful if the instructors could provide an assignment-specific rubric that conforms with the main rubric. As a non-specialist, I don’t know all the elements of every assignment. The different assessors may be picking at different elements and I don’t know what is more important or less important.”

# CONTINUAL IMPROVEMENT/CLOSING THE LOOP and NEXT ACTION STEPS

The results from this GE B1/3 (5A/5C) assessment are intended to promote discussion across the campus community about how we support our students in attaining the physical science outcomes, and ultimately, to inform improvements in the learning experiences in GE 5A/C courses and beyond.



The following questions are part of the continuous improvement/closing the loop activity for departments to fill out and return to the Office of General Education (kevin.kaatz@csueastbay.edu and nancy.white@csueastbay.edu ) by end of Spring, 2026. The questions will help guide a specific action plan to improve student success for our 5B courses.

- How are these data consistent with your experience as a department/instructor?
- The results show that the Pell, First Gen, and URM students who took part in the B2/5B assessment project are on par with our non-Pell, no-First Gen, non-URM students. How can the instructors in these courses/Department chairs share out to the rest of the Biological Sciences/Physical Sciences their methods that are helping all students succeed?
- As you look through the Student Survey results, what trends do you see and how can student learning be improved, based on these specific results? (The 5A and 5B results are mixed together)
- Overall, what steps do you think could be taken to improve student success in general?
- Do you have any advice on updating the learning outcomes and/or rubric for future assessment projects?

# Appendix B1/2 Rubric and B2-Specific Learning Outcomes

Upon completion of the GE Area 5B requirement, students will be able to:
1. Demonstrate knowledge of scientific theories, concepts, and data about the life sciences;
2. Demonstrate an understanding of scientific practices, including the scientific method; and
3. Describe the potential limits of scientific endeavors, including the

accepted standards and ethics associated with scientific inquiry.

| | PERFORMANCE DESCRIPTORS BY LEVEL | | | |
|---|---|---|---|---|
| **DIMENSION** | **4**<br>**Exceeds Expectations** | **3**<br>**Meets Expectations** | **2**<br>**Needs Improvement** | **1**<br>**Does not meet expectations** |
| **Concepts**<br>Articulate knowledge of scientific concepts. | Comprehensive articulation; thoroughly captured the main idea(s). | Adequate articulation; captured main idea(s) at a basic level. | Limited articulation; some misunderstanding of the main idea(s). | Little to no articulation of the main idea(s). |
| **Evaluation**<br>Evaluation of scientific theories, concepts, and/or interpretation of data. | Evaluation or interpretation is thorough, correct, and clearly presented. | Evaluation or interpretation is mostly correct. | Evaluation or interpretation has multiple errors. | Evaluation or interpretation is incorrect. |
| **Application**<br>Use scientific practices, methods, arguments and/or describe accepted standards/ethics associated with scientific inquiry. | Application thoroughly demonstrates comprehension. | Application adequately demonstrates comprehension; missing no more than one element. | Application demonstrates limited comprehension; missing multiple elements. | Application demonstrates little to no comprehension. |

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