

#21

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Page 1: I. Program Overview and Update

Q1

1. Department(s) Reviewed:

Biology

Q2

2. Lead Author:

Michelle Garcia

Q3

3. Collaborator(s) - list of any person that participated in the preparation of this report:

Fabienne Bouton, Richard Jimenez, David Lizarraga, Christina Burnett, Kathryn Nette, Elizabeth Fontaine, Crystal Schalmo, Joanna Redfern, David Burnett, Susan Fischer, Megan Smith, Tammy Oliver, Stan Rodriguez, Moriah Meeks-Gonzalez, Miriam Simpson, Amanda Rosas

Q4

4. Dean/Manager(s):

Tammi Marshall

Q5

5. Initial Collaboration Date with Manager/Dean:

Enter the initial date you met **12/01/2023** with your dean to discuss your program review using this format: MM/DD/YYYY

Q6

6. Program Update (Required): Please summarize the changes, additions, and achievements that have occurred in your program since the last program review. You can access 2022 program reviews on the program review webpage.

Since the last program review, the Biology Department has undergone significant changes and achieved notable milestones. The department has developed a community of practice, fostering collaboration to develop Culturally Relevant Activities in Biology (CRAB). This initiative aims to create an inclusive and engaging learning environment for biology students across the discipline. Our changes can be summarized as either relating to Pedagogical Strategies or Engagement of Historically Excluded Students.

****Pedagogical Strategies****

Upon resuming in person activities post-Covid, it was observed that the general biology lectures (Bio 130) lacked synchronization among different sections, both in terms of lecture content and laboratory schedules (Bio 131). The absence of consistency resulted in students encountering lab topics that had not been covered in their respective lectures, potentially hindering their success. To rectify this issue, the schedules for general biology have been aligned across all lecture and lab sections. Additionally, noteworthy enhancements have been made to the general biology lab, incorporating new materials in seven updates aimed at fostering inclusivity and increasing engagement.

The program has shifted its focus in student learning outcomes from being content-driven to concept-driven. Emphasis has been placed on developing meaningful assessments that yield useful data. The department is dedicated to utilizing this data to inform and improve pedagogy, ensuring a dynamic and effective teaching approach.

A groundbreaking development includes the introduction of the Codon Learning textbook platform. Piloted with a Foundation Innovation Grant, this platform is implemented in one section of both Bio 240 (major course) and Bio 130 (non-major course). The platform is low cost for perpetual access and is seamlessly integrated with Canvas and supplemented with free online resources such as OpenStax, journal articles, and videos. This initiative is designed to establish a baseline foundation and promote metacognition, emphasizing "learning how to learn", enhancing life-long learner skills for our students. For the major-level course, 73% of students said it helped them to prepare for exams, 88.5% said it helped them to identify topics they needed help with that could be addressed with the instructor.

****Engagement of Historically Excluded Students****

The Biology Department has also taken steps to engage Kumeyaay students in science by working with the Kumeyaay Studies Program with the ongoing development of the Kumeyaay Village on campus. This includes the establishment of the Kumeyaay Science Club, E'Muht Mohay (love for the land in Kumeyaay) in Spring 2023. A historic event, the first Cultural Burn in over 200 years took place in May 2023. This event highlighted the use of indigenous fire science, included our Kumeyaay Science (Bio 134 and Bio 135) and club students in conjunction with the local fire department to successfully establish a fire regime to combat wildfire risk and replenish and restore part of the Cuyamaca College nature preserve located near our Kumeyaay Village. Furthermore, biannual events such as "It Takes a Village! Building Event" strengthen bonds across the campus and within the community. These events engage and serve historically excluded groups, such as our Native American students in activities that celebrate both their culture and their knowledge of the land.

Lastly, the Biology Department proudly maintains an active SACNAS (Society for Advancement of Chicanos/Hispanics and Native Americans in Science) Chapter, showcasing its commitment to diversity and inclusion in science education. These achievements collectively reflect the department's dedication to innovation, inclusivity, and community engagement in the field of biology.

Q7

Yes

7. Did your program complete and submit SLO assessment in the last year? If you are unsure, check the most recent updates on your program's SLO Assessment Updates.

Q8

7a. Which SLOs did you assess in the last year? If you did not assess in the last year, please share why, including whether your program is experiencing barriers to assessment or data submission, and/or if your program would benefit from outcomes and assessment support.

For more meaningful collection and analysis of SLO data, the biology department has shifted our focus from content to concept driven SLO assessment. Seven course SLO have been adjusted (Bio 133, Bio 134, Bio 130, Bio 131, Bio 140, Bio 240 and Bio 251) and curriculum to meet these new SLO developed are tuned in communities of practice in biology (CRAB) and/or STEM (SEED: Science and Engineering Educational Development).

Recent SLO assessments include Bio 134 (all SLO), Bio 152 (1 SLO), Bio 251 (all SLO):

****Bio 134:**

In Spring 2023, all SLO were assessed for Bio 134: Ethnobotany. Two projects were utilized to assess the three student learning outcomes. These projects are meant to increase student engagement as well as a sense of community in the classroom. As this course is a Kumeyaay Science course, it is part of the philosophy of the Kumeyaay that knowledge is not knowledge unless it is shared. With this in mind, the projects are meant for students to collaborate and share what they are learning with each other. In this manner, the projects not only assess individual student learning, but they build on the body of knowledge that students are developing as a community of learners. This approach has not only led to high levels of student success (over 88% success rate for all SLO) but also inspired the creation of a very active Kumeyaay Science Club, E'Muht Mohay (love for the land) that continues the learning of MAT science (Modern and Traditional, also Kumeyaay word for land) by tending our on-campus Kumeyaay Village.

****Bio 152:**

In Spring 2023, the assessment of Bio 152: Paramedical Microbiology took place, wherein the instructor employed a project-based assessment to evaluate the skills acquired by students over the semester. Given that the SLO for the course involves the development and integration of multiple skill sets, it was decided that, instead of assessing each individual skill independently, mini projects would be the most effective method. These projects were designed to consolidate various skills towards the overarching goal of enabling students to isolate and identify organisms of medical significance.

Due to the requirements of the Grossmont nursing program, the course is undergoing a transition from 5 units to 4 units, necessitating updates to some SLOs. However, the SLO assessed in Spring 2023 will remain unchanged. Analysis of student success data revealed that, across both classes, the lowest average scores for all three unknown projects were 80% or higher against a 70% target for passing the SLO. This is particularly noteworthy as success in this SLO not only gauges conceptual understanding but also underscores the importance of acquiring practical skills to pass the associated projects.

The data indicates excellent performance, considering the dual emphasis on conceptual understanding and the acquisition of physical skills. It's worth noting that the time required for students to acquire these skills varies, but the course structure is designed to accommodate these differences and provide students with the necessary time to succeed. The overall success in achieving this SLO reflects the effectiveness of the course's approach in catering to diverse learning needs and ensuring that students master the required skills.

****Bio 251**

In Spring 2023, all SLO were assessed for Bio 251: Human Dissection. All of the students were able to meet the criteria necessary to pass all of the SLO for this course. The primary determinant influencing students' success in this course is the selection process, wherein the instructor makes choices based on several criteria. These include: 1) feedback from their previous anatomy instructor, the knowledge previously acquired in Biology 140, and the students' ability to collaborate effectively, work independently with minimal supervision, and adhere to guidelines; 2) an interview with the instructor teaching the course.

One of the primary challenges faced in this course is the limited exposure to dissection techniques in the lower-level course. Overcoming this challenge involves encouraging students to use appropriate dissection techniques and instruments, such as vein stripping, blunt dissection, transection, lifting, or holding structures. Unlike Bio 140, which follows a systemic approach, Bio 251 adopts a regional approach to anatomy. This approach provides students with the opportunity to directly engage with the three-dimensional relationships of anatomical structures and exposes them to variations in human body anatomy.

Q9

8. Please share any outcomes assessment projects your program has worked on in the last year, including SLOs on Canvas, PLOs by ACP, Equitable Assessment Strategies (innovative collective/common assessments, project-based, work-based learning, student-centered, etc.), or other.

Courses that went unassessed in the previous year have been undergoing evaluation in both SLO and curriculum development. The department is placing a strong emphasis on adopting a concept-driven and project-based approach to assessment. Achieving this goal requires careful time management, planning, and coordination among both full-time and part-time faculty members. At present, we are in the process of piloting three assessments for the Fall of 2023 to examine the new SLO for Bio 130, 140 and Bio 240.

**Bio 130

In the case of Bio 130, the department's primary focus has been on evaluating it as a prerequisite and devising the best strategies to cater to the needs of students entering the pre-Allied Health major, particularly those who will be taking Bio 140, 141, and 152. During the staff development week in Spring 2023, our department utilized the SLO meeting to collaborate and brainstorm, specifically addressing the skills and knowledge our students require to be well-prepared for the coursework that Bio 130 and Bio 131 serve as prerequisites for. Upon examination, it was determined that the existing SLO were cumbersome, challenging to assess, and did not yield meaningful data to ascertain whether students were achieving the necessary outcomes for success in their subsequent coursework.

Through this endeavor and subsequent collaboration within CRAB, we streamlined the Student Learning Outcomes (SLO) from six to one, focusing on a key concept crucial for success in the next three courses: understanding how form dictates the function of biological machinery, spanning from cells to tissues, organs, and organisms. This singular SLO allows for the assessment of student learning from the initial class material to the conclusion of the semester. It encompasses a concept that can be evaluated using a diverse range of content. Such an assessment strategy enables us to align Bio 130 students' learning with potential challenges they might encounter in Bio 140, 141, and/or Bio 152.

Our initial assessment involves a project-based learning assignment centered around the theme of "form determining function," specifically targeting a content area identified by Bio 140, 141, and 152 instructors as a common struggle for students—cell structure and function. Finding innovative solutions to assist students on this topic is also addressed in our action items under both goals. We are requesting plant and animal cell models to provide students with an interactive hands-on approach to teaching about cell structure and function.

This semester, one section of Bio 130 is piloting the "Alien Space Cells Project" for the SLO assessment. The project's objective is for students to articulate, using factual evidence and appropriate terminology, the roles of cellular structures in biological function. Our department is scrutinizing the SLO through content deemed critical for success in both Bio 130 and future coursework (Bio 140, 141, and 152). The project aims to be both engaging and enjoyable for students, presenting them with the imaginative challenge of assuming the role of a primitive bacterial cell from an alien planet. Interacting with a tardigrade trader named Zork, they can purchase organelles and cellular structures from Earth to evolve into multicelled organisms. The project encourages collaborative thinking, requiring students not only to memorize information but also to apply their knowledge and imagination collectively.

This project's initial proposal and refinement took place during a CRAB meeting. Following the first iteration this semester, both qualitative and quantitative data will be evaluated by department members to further refine the project and introduce it to the broader cohort of general biology instructors for implementation in Spring 2024. The need for better visuals for students, such as plant and animal cell models, was reported by instructors. These models are being requested, please see the supply request for more information on these models.

**Bio 140

Due to the requirements of the Grossmont nursing program, in Fall 2023 Bio 140 transitioned from 5 units to 4 units, necessitating an update to the SLOs. The major modification to the SLOs resulted from the suppression of the cat dissection. All four SLOs will be assessed this Fall 2023 using a case study. The case study has been developed to integrate an array of skills such as the

identification of relevant information to formulate answers, the application of acquired knowledge, and the demonstration of critical thinking skills.

****Bio 240**

Bio 240 underwent a comparable shift in strategy, transitioning from a focus on content to a concept-driven approach in SLO. The number of SLO were streamlined from six to three, allowing for ongoing assessment of students' knowledge and skills throughout the semester. This transformation in SLO assessment was facilitated by the implementation of innovative pedagogy aimed at teaching the most challenging unit in the course.

Historically, this particular unit posed challenges, leading to student struggles, disengagement, and even dropping the course. To address this, a project-based learning approach was introduced in the Fall of 2022. The initiative, known as "The Hopeful Monster Project," aimed to foster sustained and deep inquiry, ultimately enhancing student retention and success in the course.

Departing from traditional exam-based assessments covering the evolution and physiology of organ systems in various animal phyla, including humans, the project encourages students to integrate their understanding of organ systems. The task involves creating an animal by combining elements from the systems they are studying and then making modifications to ensure its survival in a specific environment.

This innovative approach facilitates higher-level learning, as students move beyond mere memorization to actively utilizing information. Their focus has shifted towards discussing the constraints imposed on physiological processes within their created animals based on the biome and combination of anatomic structures. The students leverage their knowledge to innovate and create, presenting their projects to peers. This collaborative process involves discussions, debates, and cooperation to enhance the viability of their designed animals.

Upon the project's development, it was observed that its objectives could function as SLO for the entire Bio 240 course. Consequently, the SLO for this 5-unit lecture/lab course, covering evolution, organisms (ranging from bacteria to animals), and ecology, underwent a transformation from a content-oriented to a concept-focused approach.

Simultaneously, the pedagogical strategy for the course underwent a shift towards greater incorporation of project-based learning. This approach encourages students to actively immerse themselves in the material, tackling challenges that prompt them to enhance both their knowledge and skill sets.

In the past, when traditional pedagogical methods (often characterized as "sage on the stage") were employed to teach this course, student engagement and comprehension of the material were dismal. Contrastingly, in the current approach, students actively participate, posing intricate questions to both their peers and the instructor. This active engagement has led to a profound understanding of the material, surpassing what an SLO can quantitatively measure. Nevertheless, rest assured that we will continue to assess and demonstrate these student outcomes are being achieved or where we need to focus to help students achieve them.

The instructional approach has been disseminated and applied within the biology community of practice, CRAB, and the STEM community of practice SEED (Science and Engineering Educational Development). In a broader effort to align with the College's objectives of promoting equity, inclusion, and innovation, this pedagogical initiative was also presented to the EMTLI cohort for the academic years 2022/23 and 2023/24.

Q10

Respondent skipped this question

OPTIONAL: You may upload a copy of any assessment-related documents here. If you have an Excel sheet, please convert it to one of the supported files listed below before submission.

Page 3: II. Assessment and Student Achievement

Q11

9. Please discuss any equity gaps in access or success

In the broader context, the Biology Department is currently experiencing positive retention and success rates, standing at 88% and 75%, respectively, for Spring 2023. However, a more detailed analysis of disaggregated data reveals ongoing efforts to address equity gaps. Encouragingly, there are signs of improvement in retention and success rates for Hispanic/Latin students, and overall positive trends for African American students, except for a notable decline in success during Spring 2023. This isolated instance is being closely monitored, with anticipation for a comprehensive analysis of trends when Fall 2023 data is available.

Equity gaps have been identified in terms of access for African American students to the discipline. Over a five-year period, the participation rate of African American students in our 200-level Biology major coursework is only 1.6%, in contrast to 30% for Hispanic/Latin students and 35% for white students. This underscores the significance of addressing our primary goal of increasing access to the major, as outlined in Goal 1 along with its associated action items. Graphs providing additional context can be found in the supplementary attachment.

The department's data exploration for this update centers on Bio 130 and Bio 140, our highest-enrolled courses. To delve deeper into equity gaps specific to these classes and learn about the ongoing actions to mitigate these gaps, please refer to the next question and our Goal 2, its associated action items, and the supplementary graphs available for a more comprehensive understanding.

Q12

10. What action will the department or discipline take to address these equity gaps? If equity gaps have been reduced or eliminated, please share what the program did to achieve this. If equity gaps still exist, consider the specific steps your department will take to address equity gaps.

The Biology Department has taken proactive measures to address equity gaps and foster inclusivity within the program. Despite ongoing efforts, equity gaps persist, prompting a commitment to further examine data and enhance improvement initiatives.

A recent CRAB meeting involved a thorough data analysis of success and retention rates in Bio 130 (general biology) and Bio 140 (anatomy). While an equity gap remains in Bio 130 in Spring 2023, there have been notable improvements, with success rates for Hispanic students rising to 70% and African American students to 79%, compared to the 82% success rate for White students.

Acknowledging the existing equity gaps, the department aims to leverage insights from the community of practice and data evaluation to enhance retention and success rates, particularly in challenging courses like Bio 140. Despite ongoing efforts, success rates in Bio 140 remain low, prompting the need for a deeper understanding of student preparedness. The department is exploring the correlation between where students complete their prerequisites (Bio 130/Bio 131, Bio 120 at Grossmont or outside the district) and success in Bio 140, aiming to address low success and retention rates.

To support students in Bio 140, the department has implemented measures such as extensive open lab hours, tutoring support with six available tutors, and faculty-led anatomy games in the STEM center to encourage active engagement with the material.

Although Bio 130 success rates are improving, Bio 140's performance has not shown the expected improvement. Two hypotheses are considered: students may not have taken their prerequisites at Cuyamaca, or Bio 130 may not adequately prepare students for Bio 140. A research request is planned to identify the root cause. Regardless of the cause, the department recognizes the need for additional support, proposing the introduction of a support course and/or embedded learning assistants. A research request will explore the correlation between assistance courses for Bio 140 that are run at Grossmont and success rates at Grossmont. The department is also seeking embedded learning assistants for all anatomy sections, emphasizing the importance of proper training for instructors to ensure success.

Q13

11. How has this data impacted the goals set in your previous comprehensive program review?

Our department's overarching goals revolve around boosting the enrollment of marginalized populations in the Biology Major, focusing on improving program access, and concurrently reducing equity gaps evident in the retention and success rates of students of color in 100-level biology courses. The commitment to these goals stems from the belief that data is crucial for assessing the current status of our students and strategically utilizing our limited resources to positively impact their academic journey.

The recent data analysis, conducted during a CRAB meeting, sheds light on the success and retention rates in Bio 130 and Bio 140. While there has been improvement, the persistent equity gaps in Spring 2023 highlight the need for continued efforts. Despite the ongoing challenge, there is a positive trend with success rates for Hispanic and African American students increasing, demonstrating progress toward our equity-focused goals. Please see example of CRAB in action in supplemental attachment.

This data has prompted a closer examination of our strategies and interventions, especially in courses like Bio 140, where success rates remain a concern. The disparities in success rates between different demographic groups underscore the importance of tailoring our approaches to address specific needs.

Moving forward, the department recognizes the impact of student preparedness for challenging courses like Bio 140 and aims to explore the correlation between where students complete their prerequisites and their success in subsequent courses. This additional layer of analysis is vital for refining our strategies and allocating resources effectively.

Moreover, the proposed introduction of a support course and embedded learning assistants, along with the research request to investigate the correlation between assistance courses and success rates at Grossmont, reflects our commitment to adapting our approach based on data-driven insights.

In essence, this ongoing data evaluation not only reaffirms our departmental goals but also prompts a deeper reflection on the effectiveness of our initiatives. The commitment to addressing equity gaps remains steadfast, with a keen awareness that data serves as our compass in navigating the path toward a more inclusive and successful biology program.

Q14

12. Please describe the most significant or impactful ways your program worked across the college to advance the college's vision of equity, excellence and social justice through education over the past year.

The Biology Department has proactively taken a series of actions to address equity gaps and promote inclusivity within the program. These steps have demonstrated the department's alignment with the college's vision of equity, excellence and social justice through education.

1. Community of Practice (CRAB): The establishment of CRAB fosters collaboration and aims to create a more inclusive and engaging learning environment for biology students. This initiative emphasizes cultural relevance and inclusivity.
2. Shift in Student Learning Outcomes (SLO): The department has shifted its focus from being content-driven to concept-driven in SLO. This change ensures a more comprehensive assessment of student understanding and promotes a deeper grasp of key biological concepts.
3. Meaningful Assessments: Emphasis has been placed on developing meaningful assessments that yield useful data. This data-driven approach informs pedagogy, ensuring a dynamic and effective teaching approach.
4. Curriculum Development: The synchronization of general biology schedules across all lecture and lab sections, along with seven updates to the general biology lab, reflects a commitment to enhancing inclusivity and engagement through the incorporation of new materials.
5. Codon Learning Textbook Platform: The introduction of the Codon Learning textbook platform, implemented in both major (Bio 240) and non-major (Bio 130) courses, promotes metacognition and "learning how to learn." This initiative aims to establish a baseline foundation and enhance life-long learner skills for students.
6. Engagement of Kumeyaay Students: Collaborating with the Kumeyaay Studies Program and establishing the Kumeyaay Science Club, including a historic Cultural Burn event, demonstrates the department's commitment to engaging and serving historically excluded groups, such as Native American students, in activities that celebrate their culture and knowledge of the land.
7. Project-Based Learning Initiatives: The introduction of project-based learning initiatives, such as the Hopeful Monster Project in Bio 240 and the Alien Cells Project in Bio 130, enhances student engagement and understanding. Additionally, updates and new projects in Bio 131, Bio 134, and Bio 140 contribute to a more interactive and inclusive learning experience.
8. Changes in SLO Approach: The department has changed SLO from being content-driven to concept-driven in various courses, including Bio 133, Bio 134, Bio 130, Bio 131, Bio 140, Bio 240, Bio 251. This shift ensures a focus on broader understanding rather than rote memorization.
9. Student-Centered Initiatives: Initiatives like the Kumeyaay Science Club, interactive review games in the STEM center for Bio 130 and Bio 140, and the shift in modality for Bio 141 to hybrid reflect a commitment to creating a student-centered learning environment.
10. Flexibility and Access: Adding a section of Bio 230 in Spring with a different day/time in the district increases accessibility, catering to diverse student needs.
11. SACNAS Chapter: Maintaining an active SACNAS Chapter underscores the department's commitment to diversity and inclusion in science education, contributing to a supportive and inclusive academic environment.

These concerted efforts collectively demonstrate the Biology Department's dedication to addressing equity gaps, promoting inclusivity, and engaging students in meaningful ways within the field of biology.

Q15

13. What challenges is your program still experiencing due to the disruption of operations caused by the pandemic and the need to offer services in various modalities?

The challenges our program currently faces stem from issues related to student preparedness and the rising costs associated with lab operations. Many students finished their prerequisite courses online, leading to a limited preparedness for the challenges of in-person classes and a shortfall in the thorough understanding and laboratory skills typically gained from in-person prerequisites. Addressing these challenges necessitates increased resources, including smaller class sizes and more individualized interactions with faculty, which is challenging in large classrooms. Additionally, our department grapples with the escalating costs of laboratory supplies and the aging of equipment that remained inactive during the period when classes were conducted online. For example, we could offer over two more sections of BIO 140 in Spring based on wait list numbers, but we need another dedicated lab space, another lab technician, and more supplies money.

Q16

OPTIONAL: Please upload any documentation you would like to include as part of your responses to this section of the program review.

Program%20Review%20Supplemental%20Graphs.pdf (1022.5KB)

Page 4: II. Assessment and Student Achievement continued

Q17

Yes

11. Does your department offer classes that are approved distance education courses?

Page 5: DE Course Success Rates

Q18

12. If there were differences in success rates for distance education (online) versus in-person sections of program courses in your last comprehensive program review, what has the department done to address these disparities? If online and in-person sections had comparable success rates, please describe what the program did to achieve that.

We do not offer courses in both modalities at the same time. All sections of a course are run in the same modality.

Page 6: III. Previous Goals: Update

Q19

Previous Goal 1:

Increase enrollment of marginalized populations in the Biology Major. (access)

Q20

In Progress - will carry this goal forward into next year

Previous Goal 1:

Page 7: III. Previous Goals: Update continued

Q21

Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Q22

Respondent skipped this question

Do you have another goal to update?

Page 8: III. Previous Goals: Update continued

Q23

Increase equitable access (enrollment)

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support?
(Check only one)

Q24

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Old Action Steps and status of action steps are written below:

1. Hire equity minded full-time Bio 130 and Bio 131 faculty -Develop general biology lecture and lab as culturally relevant and highlight alternatives/have course embrace students instead of seen as a barrier to success

**We were not able to hire a new faculty member to develop equity minded pedagogy and coordinate Bio 130 and Bio 131. We are still requesting a faculty hire for this action step.

2. Hire full time microbiology instructor to meet the demands that students have for the course county-wide.

**This action item is being removed

3. Continue SACNAS chapter: The Society for Advancement of Chicanos/Hispanics and Native Americans in Science/STEM(SACNAS) is the nation's largest multidisciplinary and multicultural organization dedicated to increasing the number of traditionally underrepresented students in STEM and motivating them to become leaders. As our students transition to four-year institutions, they can connect with existing chapters at their new campuses to find support and establish their new STEM community.

**This will be a continuing action item as it increases awareness and access for students in STEM. We need to better advertise the chapter to increase student participation.

4. Advertisement Campaign to include representation of Scientists from different backgrounds

**We are working towards this action item, but have not had time to begin this campaign.

5. Continue support and participation in Kumeyaay Village -Advertise Kumeyaay Science courses and the importance of diversity in science.

**This will be a continuing action item as our department offers the Kumeyaay Science courses (Bio 133, Bio 134 and Bio 135). The Kumeyaay Science Club (E'Muht Mohay) and Village events will continue to be supported and advertised within the department.

New Action Steps:

6. Replace failing incubators to support students in Bio 152 and Bio 230. Without the incubators, we will not be able to run these course, thereby eliminating access - please see supply request

7. Increase student access to visual aids and organ models for Bio 140 (Anatomy) - please see supply request

8. Incorporate plant and animal cell models for Bio 130/131 (general biology) and our major-level courses (Bio 230/240) to enhance student engagement - please see supply request

Q25

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

New faculty position,

Supplies, equipment, and/or furniture

Q26

Yes

Do you have another goal to update?

Page 9: III. Previous Goals: Update continued

Q27

1. Previous Goal 2:

Decrease equity gaps seen in retention and success rates of students of color in 100-level biology courses. (success)

Q28

In Progress-will carry this goal forward into next year

3. Goal Status

Page 10: III. Previous Goals: Update continued

Q29

Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Q30

Respondent skipped this question

Do you have another goal to update?

Page 11: III. Previous Goals: Update (If Applicable) continued

Q31

Eliminate equity gaps in course success (passing grade in class)

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support? (Check only one)

Q32

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Old Action Steps and status of action steps are written below:

1. Faculty hire dedicated to Bio 130 and Bio 131 equity minded instructor to make course inclusive and engaging

**We were not able to hire a new faculty member to develop equity minded pedagogy and coordinate Bio 130 and Bio 131. We are still requesting a faculty hire for this action step.

2. Advertising of alternative courses to Bio 130 for non-majors, in particular Kumeyaay Science courses

**In process, we need to communicate with counseling as a new action item to help advertise.

3. Develop community of practice to work on culturally relevant curriculum and equity minded pedagogy

**Our community of practice, CRAB, has been effectively running since Spring 2023 and we will continue it.

4. Development of Nature Preserve utilizing both restoration ecology and traditional ecological knowledge to build a Kumeyaay Village with student participation

**The Kumeyaay Village has been thriving with our partnership with the Kumeyaay Studies Program. We will need materials to support the Village as an outdoor learning laboratory, such as a shed. This request is being asked by the Kumeyaay studies program and will also support the Kumeyaay Science courses offered (BIO/KUMY 133, 134, 135)

5. Professional development within department meetings and strong encouragement to enroll in EMTLI and examine disaggregated data for individual courses

**This has been occurring and will continue to be an action item, as encouragement for this work is still needed.

6. Monthly department meetings to promote community building, support and guidance for faculty

**We added two department meetings last Spring, but for Fall, our department has focussed on the work we have been doing in CRAB. Emails have been used to keep faculty up to date. Hopefully, in Spring we will be able to get together more frequently for official department meetings.

New Action Steps

7. Incorporate plant and animal cell models for Bio 130/131 (general biology) to enhance student learning through innovation - please see supply request

8. Increase student access to visual aids and organ models for Bio 140 (Anatomy) - please see supply request

***Research strongly supports use of models in college classrooms. Incorporating models has been shown to enhance critical thinking, improve the overall learning environment, and serve as a valuable substitute for monotonous teaching methods. Students benefit significantly by gaining a deeper understanding of the subject matter through successful and enjoyable classroom experiences. The relevance of visual aid sessions to course content is emphasized, as students find them useful and pertinent and to bring about an enriched educational experience. Use of models in anatomy make the subject matter more engaging, help students better visualize, and provide hand-ons learning experience. (Shabiralyani, G., Hasan, K. H. S., Hamad, N., & Iqbal, N. (2015). Impact of Visual Aids in Enhancing the Learning Process Case Research: District Dera Ghazi Khan. Journal of Education and Practice,

Vol.6(No.19.)

9. Development of Elder's Garden near the Kumeyaay Village, we are not currently requesting any supplies for this garden.

10. Conduct student surveys and data requests to better understand student needs.

11. ELAs in Bio 140 and training for instructors to utilize ELAs effectively in the classroom.

12. Classified staff position to provide support and services to Kumeyaay Studies students to increase successful course completion, transfer, and degree and certificate earnings. This request is in the Kumeyaay Studies program review, but it directly impacts our students in the Kumeyaay Science classes (100-level science courses) and can also impact access to the biology major by supporting students who have been largely excluded from STEM.

Q33

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

**New faculty position,
Supplies, equipment, and/or furniture**

Q34

Do you have another goal to update?

No

Page 12: III. Previous Goals: Update continued

Q35

1. Previous Goal 3:

Respondent skipped this question

Q36

3. Goal Status

Respondent skipped this question

Page 13: III. Previous Goals: Update continued

Q37

Please describe the results or explain the reason for deletion/completion of the goal:

Respondent skipped this question

Q38

Do you have another goal to update?

Respondent skipped this question

Page 14: III. Previous Goals: Update continued

Q39 Respondent skipped this question

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support?
(Check only one)

Q40 Respondent skipped this question

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Q41 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q42 Respondent skipped this question

Do you have another goal to update?

Page 15: III. Previous Goals: Update continued

Q43 Respondent skipped this question

1. Previous Goal 4:

Q44 Respondent skipped this question

3. Goal Status

Page 16: III. Previous Goals: Update continued

Q45 Respondent skipped this question

Please describe the results or explain the reason for deletion/completion of the goal:

Page 17: III. Previous Goals: Update continued

Q46 Respondent skipped this question

Link to College Strategic Goal - Which College Strategic Goal does this department goal most directly support?
(Check only one)

Q47 Respondent skipped this question

Action Steps for the Next Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new laptop computers).

Q48 Respondent skipped this question

What resources, if any, are needed to achieve this goal? Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Page 18: IV. New Goals

Q49 No

Would you like to propose any new goal(s)?

Page 19: IV. New Goals continued

Q50 Respondent skipped this question

1. New Goal 1:

Q51 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q52 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal identified above.

Q53 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q54 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q55 Respondent skipped this question

6. How will this goal be evaluated?

Q56 Respondent skipped this question

What resources, if any, are needed to achieve this goal?
Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q57 Respondent skipped this question

Do you have another New Goal?

Page 20: IV. New Goals continued

Q58 Respondent skipped this question

1. New Goal 2:

Q59 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q60 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q61 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q62 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q63 Respondent skipped this question

6. How will this goal be evaluated?

Q64 Respondent skipped this question

What resources, if any, are needed to achieve this goal?
Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q65 Respondent skipped this question

Do you have another New Goal?

Page 21: IV. New Goals continued

Q66 Respondent skipped this question

1. New Goal 3:

Q67 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q68 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q69 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q70 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q71 Respondent skipped this question

6. How will this goal be evaluated?

Q72 Respondent skipped this question

What resources, if any, are needed to achieve this goal?
Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Q73 Respondent skipped this question

Do you have another New Goal?

Page 22: IV. New Goals continued

Q74 Respondent skipped this question

1. New Goal 4:

Q75 Respondent skipped this question

2. Which College Strategic Goal does this department goal most directly support? (Check only one)

Q76 Respondent skipped this question

3. Please describe how this goal advances the college strategic goal(s) identified above.

Q77 Respondent skipped this question

4. Please indicate how this goal was informed by SLO (student learning outcomes) assessment results, PLO (program learning outcomes) assessment results, student achievement data, or other qualitative or quantitative data (from any source):

Q78 Respondent skipped this question

5. Action Steps for this Year: If you are requesting resources in order to achieve this goal, please list them below as action steps and specify the type of request (e.g., submit technology request for new computer hardware).

Q79 Respondent skipped this question

6. How will this goal be evaluated?

Q80

Respondent skipped this question

What resources, if any, are needed to achieve this goal?
Please select all that apply. Links to request forms are included below. All resource requests are due on the program review deadline.

Page 24: Final Check

Q81

I am ready to submit my program review

Are you ready to submit your program review? If you would like to go back and review a section, select a section and click "Next."
