College of Alameda

2021-22 Annual Program Update - BIOL

# Program Overview

Please provide your program’s mission statement and program’s learning outcomes

**Mission Statement**

We strive to provide a learning environment that values diversity, intellectual discussion, critical thinking, and problem-solving. We provide students the opportunity to explore the science of life. We are committed to excellence in our teaching, and helping students acquire knowledge of basic facts and theories in Biology.

**Program Learning Outcomes**

Design the scientific method to formulate questions, explore experiments to test hypotheses, interpret experimental results to draw conclusions, communicate results both orally and in writing, and evaluate the use of the scientific method from published sources critically.

Apply evolutionary theory at the molecular, cellular, organismal and population levels to explain the unity and diversity of living things.

List your program faculty and/or staff

Leslie Reiman, Tenured Faculty Reza Majlesi, Tenured Faculty Leslie Bach, Adjunct Faculty Peter Niloufari, Adjunct Faculty Scott Shultz, Adjunct Faculty

Vaishali Bhagwat, Adjunct Faculty Karen Wedaman, Adjunct Faculty

Constanze Weyhenmeyer, Adjunct Faculty Muwafaqu Alasad, Adjunct Faculty

Parisa Roghani, Adjunct Faculty

Describe your current utilization of facilities, including labs and other space

The Biology Department courses are being offered at the Science Annex located at 860 Atlantic Ave. In the building we share two classrooms (110 & 160) with Chemistry and Geology to hold our lectures for Biology 1A (General Biology, majors), 1B (General Biology, majors), 4 (Human Physiology), 3 (Microbiology), 2 (Human Anatomy), and 10 (Introduction to Biology). In turn, we must hold some of our lectures in our laboratory rooms followed by their respective lab. This of course makes it challenging to schedule our courses in adequate space to support our students.

The Biology 1A (General Biology, majors), 1B (General Biology, majors), 4 (Human Physiology), and 3 (Microbiology) laboratories are held in room 140 since it is the only room that has Bunsen burners and fume hoods. The Biology 10 (Introduction to Biology) is held in room 134 and Biology 2 (Human Anatomy) is held in room 130.

Room 131 houses our cadaver, and a single leg.

Room 135 is the office for the Laboratory Coordinator, which is directly attached to the Stock Room (136), the glassware is washed in room 144 and the Hazardous tissues and specimens are kept in room 143, while room 141 is used to grow plants for several experiments carried out in our Biology 1B course.

Currently, the Science Annex is also being shared with Merritt College where they use the inner center of the laboratory spaces for a Genomics course.

We will be offering a Microbiology in-person lab for the first time this coming Spring 2022 and very much look forward to serving our students. In addition, we will be offering most of our laboratories in person to better support and serve our students and community.

At this time, we have access to two Faculty offices in the building; however, with the new full-time faculty, we hope that the new building will allow for at least six offices for Faculty to meet with students and to carry out our daily work and responsibilities. Three for the current full-time faculty and three for adjunct faculty to share.

List your program goals from your most recent Program Review or APU. Then, provide an update on the status of the goal. Has your program achieved the goal? Have any of your goals been revised or any still in progress? Lastly, make sure to discuss which College or District goal your program goal aligns to.

If no program goals exist or if this is your first program review, work to create 2-3 goals and align them with a College or District goal.

|  |  |
| --- | --- |
| **Program Goal** | That our teaching online and in person meets and exceeds the needs of our students |
| Status: In-Progress or Complete? | In progress—Several of our Faculty have taken courses to learn how to effectively teach online and some Faculty have been teaching hybrid courses online for multiple  years. |
| Which college or district goal is aligned with your program goal? | Solve problems and make decisions in life and work using critical thinking, quantitative reasoning, community resources, and civil engagement.  **and**  Use technology and written and oral communication to discover, develop, and relate critical ideas in multiple environments. |

|  |  |
| --- | --- |
| **Program Goal** | Provide students with skills necessary for critical thinking |
| Status: In-Progress or Complete? | In-progress |
| Which college or district goal is aligned with your program goal? | Critical thinking and applied skills is another vision and mission for our college. |

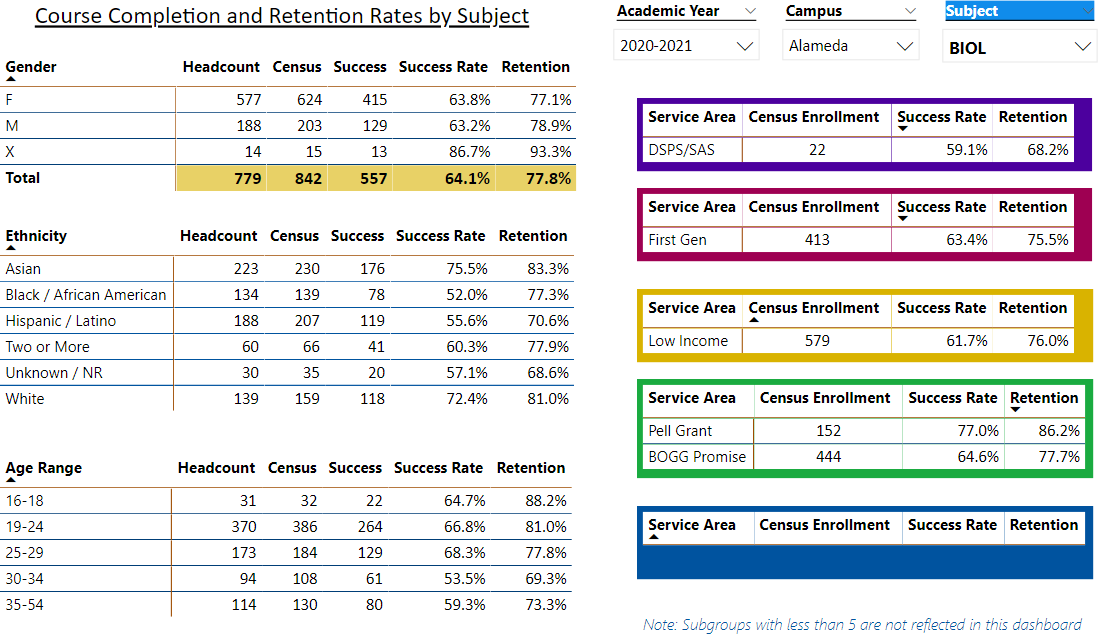
|  |  |
| --- | --- |
| **Program Goal** | Provide appropriate series of courses and classes, which are necessary for our students to achieve their  educational goals and/or to transfer to a 4-year college. |
| Status: In-Progress or Complete? | Although this is in-progress, we will be offering both  Biology 1A and 1B for students transferring to 4-year colleges in Spring 2022. |
| Which college or district goal is aligned with your program goal? | Our school and the district adapted Guided Pathway to help our students to achieve their education goals. |

# Program Update

Using the dashboards, review and reflect upon the data for your program.

**Course Completion and Retention Rates – Instructional Dashboard Course Completion and Retention Rates – Student Services Dashboard Enrollment Trends and Productivity Dashboard**

**Degrees and Certificates Dashboard**



Describe any significant changes and discuss what the changes mean to your program. Consider whether performance gaps exist for disproportionality impacted students by using filters to disaggregate the data. Focus upon the most recent year and/or the years since your last comprehensive program review. Cite data points to support your reflection.

I detected a decline in Success Rate of Black/African American and Hispanic/Latino students when comparing it to the previous year (2019-2020) as shown below compared to the current Success Rate of Asian and White students at 75.5% and 72.4% respectively.

# Success Rate

2019-2020 Black/African American: 73.0%

2019-2020 Hispanic/Latino: 70.0%

2020-2021 Black/African American: 52.0%

2020-2021 Hispanic/Latino: 55.6%

I feel this is a considerable gap and decline that occurred due to multiple factors:

* The global pandemic of COVID-19
* Fake students enrolling in our courses
* Teaching online

In turn, I feel the data suggests that just as the pandemic has disproportionally affected our Black/African American and Hispanic/Latino communities, it has also adversely and disproportionally affected the success rates of our students in these communities.

Therefore, I suggest that our department has a robust conversation to come up with a plan to support our students in the future. Enrollment is actually increasing because we were able to offer a new course of Microbiology, in turn, I hope that we are allowed to offer more courses in our department next year to better serve our communities.

My personal suggestion is to reach out to our Counselors and Student Services to include them in a proactive plan.

Describe the department's progress on Student Learning Outcomes (SLOs) and/or Service Area Outcomes (SAOs) since the last Program Review/APU.

We are in the process of assessing SLO # 1 for all our courses for fall 2021. We will assess SLO # 1 again in Spring 2022 to determine improvement.

**Courses to be assessed are:**

Biology 1A: was assessed 2019, and we will be assessing SLO #1 Fall 2021. Biology 10: was assessed 2019, and we will be assessing SLO #1 Fall 2021. Biology 2: was assessed 2019, and we will be assessing SLO #1 Fall 2021. Biology 3: we will be assessing SLO #1 Fall 2021.

Biology 4: was assessed 2019, and we will be assessing SLO #1 Fall 2021. Bio 1 B: we will be assessing SLO #1 Spring 2022

Bio 11: has not been offered for multiple years and the department will discuss potential deactivation of this course.

Bio 102: has not been offered and the department will discuss potential deactivation of this course.

Describe the outcomes and accomplishments from previous year’s funded resource allocation request.

|  |  |  |  |
| --- | --- | --- | --- |
| **Brief description of funded request** | **Source (any additional award outside your base**  **allocation)** | **Total Award Amount** | **Outcome/Accomplishment** |
| Full-time Biology Faculty |  | ~$70,000 | To ensure more stability in our department by teaching the Biology major courses and Microbiology which will be offered again Spring 2022. |
| Laboratory Coordinator |  | ~$50,000 | The Laboratory Coordinator will be ensuring all laboratories have the materials needed, will prepare all laboratories, and breakdown all laboratories when done. |
|  |  |  |  |

# Prioritized Resource Requests Summary

In the boxes below, please add resource requests for your program. If there are no resource requested, leave the boxes blank.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Estimated Annual Salary Costs** | **Estimated Annual Benefits**  **Costs** | **Total Estimated Cost** |
| **Personnel: Classified Staff** |  |  |  |  |
| **Personnel: Student Worker** | Student worker to support Lab Coordinator | $3,000 | ? | unknown |
| **Personnel: Part Time Faculty** | Adjunct Faculty/Justification: all of our courses fill quickly and courses are needed for students to transfer to 4 year schools and are aligned with the new NSF Grant we were just awarded that aims to address issues with equity in higher education which is the vision and mission of COA in many ways and by aiming to increase the enrollment of Latinx students at College of Alameda STEM programs and positively impact rates of success and retention in STEM courses. | $14,000 | ? | unknown |
| **Personnel: Full Time Faculty** |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total**  **Estimated Cost** |
| **Professional Development: Department wide PD needed** | Faculty attendance to Conferences. For example, the American Association for the Advancement of Science and the Human Anatomy and Physiology Society | $3,000 |
| **Professional Development: Personal/Individual PD needed** | Faculty attendance to Conferences. For example, the American Association for the Advancement of Science and the Human Anatomy and Physiology Society | $3,000 |

**Prioritized Resource Requests Summary - Continued**

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total**  **Estimated Cost** |
| **Supplies: Software** | Physiology software upgrades. These upgrades are regularly needed to support students carry out their laboratories in physiology. | ~$2,000 |
| **Supplies: Books, Magazines, and/or Periodicals** | Science |  |
| **Supplies: Instructional Supplies** | Seven microphones. We will need microphones for each Faculty so that students can adequately hear our lectures since we Faculty will be using masks. Students will need to be able to hear our lectures and instructions for laboratory as well as instructions for safety before carrying a lab and at the end of the lab. | ~$1,000 |
| **Supplies: Non-Instructional Supplies** | Two high Ergonomic chairs for the Laboratory One ergonomic chair for one office | $800  $500 |
| **Supplies: Library Collections** |  |  |

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total**  **Estimated Cost** |
| **Technology & Equipment: New** | **All the items below are needed for Spring 2022**   1. **Autoclave** is needed to sterilize media to grow bacteria that must be used in every single Bio 3 (Microbiology) laboratory. In addition, media must be sterilized to be used in several experiments in our Bio 1A (General Biology, majors), and for an experiment in Bio 10 (Introduction to Biology). This device must also be used to sterilize all equipment that will come in direct contact with bacteria that must be grown during experiments in several of our courses. 2. **Refrigerator** is needed to store petri plates with media, and bacteria that must be used for every single experiment in Bio 3 (Microbiology). In addition, a refrigerator is needed to store some bacterial isolates that will be used, and for the bacterial plates containing the bacteria that students will be growing within those plates prior to carrying out further biochemical tests. In addition, a refrigerator must be dedicated solely for microbiology to reduce bacterial cross-contamination. 3. **Incubator** is a temperature-controlled oven essential to grow bacterial cultures within specific temperature ranges in Bio 3 (Microbiology), Bio 1A (General Biology, majors) and Bio 10 (Introduction to Biology) laboratories. The bacterial cultures will then be studied, and several biochemical tests will be carried out after. 4. **Thirty Microscopes** will be needed to identify the bacterial isolates from the various cultures and stains (Gram, endospore, acid-fast, negative stains) that will be carried out in every Bio 3 (Microbiology) laboratory, several Bio 1A (General Biology, majors) and Bio 10 (Introduction to Biology) laboratories. Our microscopes have not been replaced for the past 20 years and several of them are broken and will not be possible to replace them. Microscopes are also used heavily in our Bio 2 (Human Anatomy) and Bio 4 (Human Physiology). 5. **Two EKG machine** will be needed to support laboratories carried out in our Bio 4 (Human Physiology) course. Students taking the course gain critical thinking skills and hands-on use of equipment | ~$10,000  (Crucial for Microbiology and Gen Bio)  ~$1000-  $2,000  Depends on availability (Crucial for Micro and Gen Bio)  ~$4,369.00  (Crucial for Microbiology and Gen Bio)  ~$20,000  (Crucial for Microbiology)  $4,000  ~$7,000 |

|  |  |  |
| --- | --- | --- |
|  | to measure the heart rhythm as the many of them will be entering a variety of Allied Health Fields.   1. **Anatomical models** will be needed to support the laboratories carried out in our Bio 2 (Human Anatomy) course. Students taking the course gain critical thinking skills, and the ability to understand the spatial location of the various organs, muscles, and structures in the human body. Several of the models have broken over the years due to wear and tear, in turn, we do not have an adequate number of models to support the success of our students. 2. **Biology models** will be needed to support our Biology 10, 1A, and 1B courses.   **Flower model** (Giant Dicot model)  **Eight DNA models Two seed models**  **Early Man and Primate Skull Comparison Set** | ~$800  ~$2,000  ~$400  ~$2,500 |
| **Further justifications to support the Biology Department request of the equipment above**: We are thrilled and thankful that Microbiology was approved in Fall 2021 by our Dean and VPI. This  course is highly sought out and it was a fully enrolled class. In addition, Microbiology is aligned with the new NSF Grant we were just awarded that aims to address issues with equity in higher education which is the vision and mission of COA in many ways and by aiming to increase the enrollment of Latinx students at College of Alameda STEM programs and positively impact rates of success and retention in STEM courses. |  |
| **Technology & Equipment: Replacement** | Wireless Internet access at 860 Atlantic (Science Building) is not reliable and we have a difficult time to use online resources. In addition, there is no dedicated computer laboratory room at the Science Building. In turn, students periodically must drive to the main building and drive back to the 860 during for a 3-hours lab, which is not the best practice. |  |

**Prioritized Resource Requests Summary - Continued**

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total**  **Estimated Cost** |
| **Facilities: Classrooms** | We **must** hold some of our lectures in our laboratory rooms followed by their respective labs. This of course makes it challenging to schedule our courses in  adequate space to support student success. In turn, we need more classroom space. | Unknown |
| **Facilities: Offices** | At this time, we have access to two offices in the building; however, with the new full-time faculty, we hope that the new building will allow for at least six offices for us to meet with students and to carry out our daily responsibilities. Three for the current full- time faculty and three for adjunct faculty to share. | Unknown |
| **Facilities: Labs** | **Please Note:**  1. Our Laboratory spaces are extremely limited, and we simply do not have enough space to offer the courses we need to support student success. | Unknown |
|  | **All the items below are needed for Spring 2022**   1. **Autoclave** is needed to sterilize media to grow bacteria that must be used in every single Bio 3 (Microbiology) laboratory. In addition, media must be sterilized to be used in several experiments in our Bio 1A (General Biology, majors), and for an experiment in Bio 10 (Introduction to Biology). This device must also be used to sterilize all equipment that will come in direct contact with bacteria that must be grown during experiments in several of our courses. 2. **Refrigerator** is needed to store pretri plates with media, and bacteria that must be used for every single experiment in Bio 3 (Microbiology). In addition, a refrigerator is needed to store some bacterial isolates that will be used, and for the bacterial plates containing the bacteria that students will be growing within those plates prior to carrying out further biochemical tests. In addition, a refrigerator must be dedicated solely for microbiology to reduce bacterial cross-contamination. 3. **Incubator** is a temperature-controlled oven essential to grow bacterial cultures within specific temperature ranges in Bio 3 (Microbiology), Bio 1A (General Biology, majors) and Bio 10 (Introduction to Biology) laboratories. The bacterial cultures will then | ~$10,000  (Crucial for Microbiology and Gen Bio)  ~$2,000  (Crucial for Microbiology and all other Biology courses)  ~$4,369.00  (Crucial for Microbiology and Gen Bio) |

|  |  |  |
| --- | --- | --- |
|  | be studied, and several biochemical tests will be carried out after.   1. **Thirty Microscopes** will be needed to identify the bacterial isolates from the various cultures and stains (Gram, endospore, acid-fast, negative stains) that will be carried out in every Bio 3 (Microbiology) laboratory, several Bio 1A (General Biology, majors) and Bio 10 (Introduction to Biology) laboratories. Our microscopes have not been replaced for the past 20 years and several of them are broken and will not be possible to replace them. Microscopes are also used heavily in our Bio 2 (Human Anatomy) and Bio 4 (Human Physiology). 2. **Two EKG machines** will be needed to support laboratories carried out in our Bio 4 (Human Physiology) course. Students taking the course gain critical thinking skills and hands-on use of equipment to measure the heart rhythm as the many of them will be entering a variety of Allied Health Fields. 3. **Anatomical models** will be needed to support the laboratories carried out in our Bio 2 (Human Anatomy) course. Students taking the course gain critical thinking skills, and the ability to understand the spatial location of the various organs, muscles, and structures in the human body. Several of the models have broken over the years due to wear and tear, in turn, we do not have an adequate number of models to support the success of our students. 4. **Biology models** will be needed to support our Biology 10, 1A, and 1B courses.   **Flower model** (Giant Dicot model)  **Eight DNA models Two seed models**  **Early Man and Primate Skull Comparison Set Further justifications to support the Biology Department request of the equipment above**: We are thrilled and thankful that Microbiology was approved in Fall 2021 by our Dean and VPI. This  course is highly sought out and it was a fully enrolled class. In addition, Microbiology is aligned with the new NSF Grant we were just awarded that aims to address issues with equity in higher education which is the vision and mission of COA in many ways and by aiming to increase the enrollment of Latinx students at College  of Alameda STEM programs and positively impact rates of success and retention in STEM courses. | ~$20,000  (Crucial for Microbiology)  ~$4,000  ~$7,000  ~$800  ~$2,000  ~$400  ~$2,500 |

|  |  |  |
| --- | --- | --- |
| **Facilities: Other** | Could the COA Biology Department have access to some equipment and/or space used by Merritt College? |  |

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total**  **Estimated Cost** |
| **Library: Library materials** |  |  |
| **Library: Library collections** |  |  |

|  |  |  |
| --- | --- | --- |
| **Resource Category** | **Description/Justification** | **Total Estimated**  **Cost** |
| **OTHER** |  |  |