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2021 - 2024

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*Overall, students in AMY, BIO, HE[e5()-3(BI)-5(O)6(,)12()-3(H)-3(E[e5()-3(BI)-5(O)6(,)1u*

*expected number of students who should get a degree would be approximately (200/3744) 5.3% of Program of Study in 2019-2020. The gap in the pipeline is approximately 3544 more students to graduate with a degree or certificate. This number is large since the majority of our students transfer to programs or universities without the necessity of the program award.*

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*In terms of student subgroups in AMY, BIO, HES, and MIC courses, only hispanic female and male student groups are showing gaps in success. Only hispanic females are showing equity gaps in retention that are concerning. Equity gaps in program of study, educational planning, and awards are not shown on the tables for these areas. We should take steps to address equity gaps for female and male hispanic success and female hispanic retention.*

We address equity gaps for females and minorities by hosting STEM Seminar Series where female and/or minority speakers are invited to share their current research and ignite interest in STEM.

We are recruiting local high school students for a Forensics for Women competition which introduces students to the basic methods of science and the scientific method.

Dr. Monica Gutierrez shares her personal experience as a hispanic female in STEM to our Puente students.

We are increasing offering of Human Biology (BIO-4) as a pre-requisite for Anatomy and Physiology (BIO-50A/B) to address preparation gaps in students from underserved populations.

Yes

2021 - 2024

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BIO and HES

97.6%

Bio-21 (SLO1 and 2) due to this being a new course

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Yes



EMP GOAL 1. Expand college access by increasing both headcount and full-time equivalent students (FTES).

EMP GOAL 3. Close all student equity gaps.

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17	Instructional Supplies	Bio 4 Posters
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We do not have assessment data at this time, due to the fact that BIO-4 has had limited offerings. There is evidence from other districts that support the working hypothesis that Human Biology courses increase success rates and close equity gaps in higher level courses for students pursuing nursing and other allied health fields.

Anderton, R.S., Evans, T., & Chivers, P. (2016). Predicting Academic Success of Health Science Students for First Year Anatomy and Physiology. *The International Journal of Higher Education*, 5, 250-260. Results found that "Previous study of science (*human biology*, chemistry or physics) strongly predicts academic performance in BMS100 (\*\*p < . 001)." Article attached to this Program Review as a supporting document.

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Yes

EMP GOAL 7. Become the regional college of choice by offering a comprehensive range of programs that prepare students for the future and meet employer workforce needs.

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*Rank Category*



EMP GOAL 9. Expand workforce to support comprehensive college and develop/sustain excellent workplace culture.

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We currently have 6 full-time faculty and 17 part-time faculty in Biology, as well as 3 full-time laboratory technicians and 1 part-time laboratory technician for Biology, Chemistry, and Physics.

We would like to hire a new full-time faculty member in Biology and a new full-time laboratory technician to support Biology, Chemistry, and Physics laboratories.

<i>Rank</i>	<i>Category</i>	<i>Request</i>
3	Faculty	Full-time Biology Instructor

We would like the following resources to continue to offer innovative and diversified laboratories:

<i>Rank</i>	<i>Category</i>	<i>Request</i>
1	Technology	Surface Pros to replace laptop computers for ST 207 t PACs
2	Technology	BIO-PACs (basic + respirometer) - BIO-50A/B
5	Instructional Supplies	Bio 4 Human Body Models
6	Instructional Supplies	Field tools and supplies - Bio 21
7	Technology	Replacement laptop computers for IT 128
8	Furniture	Replacement of all lab benches in IT 128
9	Technology	JoVE science education subscription for the library (re annually)
10	Instructional Supplies	Field Guides - Bio 21
11	Instructional Supplies	Bio 4 Human Organ models

15	Instructional Supplies	Analytical instruments and supplies - Bio 21
16	Instructional Supplies	Bio 4 Physio Equipment
17	Instructional Supplies	Bio 4 Posters
18	Technology	PCR Machine Thermo Fisher (1) - BIO-60
19	Technology	BIO-RAD UV-Visible spectrophotometers (8) - BIO-60
20	Instructional Supplies	TK6 Tissue Culture Supplies and Cell Line - BIO-60
21	Equipment	3-tiered seed sprouter - BIO-3,5,8
22	Safety	Autoclave maintenance contract (renewed annually)

To build and sustain a comprehensive college and achieve its visionary goals, we need to offer biology laboratories with up-to-date equipment and supplies. The addition of innovative resources such as these will help make the college competitive in the region.

1. Published data is available of the success of using the Bio-Pac systems to support real-time physiology labs: BIOPAC SYSTEMS HELPS STARK INDUSTRIES LAUNCH VITAL VENTILATOR FOR NASA JPL [Here.](#)  
2. Assessment data for all life science courses is available. These courses are regularly assessed with overall good student success. Once we increase the availability of Human Biology (BIO-4), we intend to compare the success of students in Anatomy and Physiology courses based on whether they took General Biology (BIO-1) as a pre-requisite or Human Biology (BIO-4) as a pre-requisite. Our working hypothesis is that students with the BIO-4 pre-requisite will have higher success and retention than students with the BIO-1 pre-requisite in Anatomy and Physiology (BIO-50A and 50B) courses. Anatomy and Physiology courses, along with Microbiology (BIO-55), are the primary courses taken by students to pursue nursing and other allied health careers. According to

(support documentation in this program review) there will be an increased demand for at least 55 healthcare occupations in the next 5 years. Many of these allied health occupations require the above listed courses as pre-requisites. Increasing these BIO course offerings with innovative and diversified resources gives our students the opportunity to pursue these regionally in demand careers.

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Yes

2021 - 2024

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No

10% or less

Yes

N/A

Yes

No

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The most meaningful and relevant component of program review is that it provides an avenue to make resource and personnel requests for Biology and Health. It is also helpful to see which courses need assessing and updating. It would be helpful if aggregated data graphs of success and retention were available, in addition to the disaggregated data graphs.

Please continue to ask what resources we need to continue to improve and grow the programs associated with our unit, and to improve student success and retention. Please provide an option to give justification for our resource requests. It would be helpful if the resources were listed by resource for review.

As mentioned previously, it would be helpful if aggregated data graphs of success and retention were





1,010

BUDGET: Request Ongoing Funding (Professional Development, Department or Program Support, Outreach, Marketing)

Other/None

Program Review: Part 1

10

New

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## 2022 - 2023 Update

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Old laptops

BIO-PACs (basic + respirometer) to offer physiology labs in BIO-50A/B

EMP Goal 7,EMP Goal 12

70,000

ITEM: Equipment, Services, Software, Furniture



Instructional Equipment Allocation, Lottery Instructional Supplies, General Fund

Program Review: Part 1

2

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No Action-Insufficient funding

Forwarded to VPAA for funding consideration

2021 - 2024

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6 Full-Time Faculty and 17 Part-Time Faculty in Biology

Full-Time Biology Instructor

EMP Goal 1, EMP Goal 9, EMP Goal 7

150,000

FACULTY: New Full time Faculty (Associate faculty requested through Dept. Chair and Dean)

General Fund

Program Review: Part 1

4

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No Action-Insufficient funding

NA



6

In Progress

Approved

2021 - 2024

6 field reel tape measures, 4 binoculars, 4 butterfly nets

Field tools and supplies to offer California Naturalist (BIO-21), a new field course

Assessment,EMP Goal 7,EMP Goal 12

1,400

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1,Assessment Review

7

In Progress

already purchased. Approved

2021 - 2024

Old laptops that no longer charge, and many of which no longer work





ITEM: Instructional supplies

Instructional Equipment Allocation, Lottery Instructional Supplies, General Fund

Assessment Review, Program Review: Part 1

10

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In Progress

Approved

2021 - 2024

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Borrowed models from anatomy if Anatomy and Physiology courses are not using them

Human organ models for Human Biology (BIO-4).

EMP Goal 3, EMP Goal 7, Achievement Data, EMP Goal 12

6,700

ITEM: Instructional supplies

Instructional Equipment Allocation, Lottery Instructional Supplies, General Fund, Equity

Data Review, Program Review: Part 1

11

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In Progress

Approved



2021 - 2024

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Old anatomy models, many of which are damaged, shared between multiple anatomy labs

Anatomy models for ST 207.

EMP Goal 7,EMP Goal 12

4,000

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1

12

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In Progress

Approved

2021 - 2024

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Old oxygen meters, several of which are broken

Replacement oxygen meters for IT 128.

EMP Goal 7,EMP Goal 12

1,300

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1



EMP Goal 7,EMP Goal 12

1,400

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1

15

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In Progress

Approved

2021 - 2024

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Equipment borrowed from anatomy labs if they are not in use

Physiology equipment for Human Biology (BIO-4).

EMP Goal 3,Achievement Data,EMP Goal 7,EMP Goal 12

540

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,Department Regular Funding,Equity,General Fund,Guided Pathways

Data Review,Program Review: Part 1

16

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In Progress

Approved

2021 - 2024

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Posters borrowed from anatomy labs if not in use

Anatomy posters for Human Biology (BIO-4).

EMP Goal 3,Achievement Data,EMP Goal 7,EMP Goal 12

65

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,Department Regular Funding,Equity,General Fund,Guided Pathways

Data Review,Program Review: Part 1

17

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In Progress

Approved

2021 - 2024

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Old PCR machine that needs replacing

PCR Machine Thermo Fisher (1) for majors' course BIO-60.

EMP Goal 7,EMP Goal 12

5,200

ITEM: Equipment, Technology, Services, Software, Furniture

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund,Guided Pathways

Program Review: Part 1

18

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In Progress

Approved

2021 - 2024

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Old spectrophotometers

Replacement BIO-RAD UV-Visible spectrophotometers (8) for majors' course BIO-60.

EMP Goal 7,EMP Goal 12

25,600

ITEM: Equipment, Technology, Services, Software, Furniture

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1

19

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TK6 Tissue Culture Supplies and Cell Line for majors' course BIO-60.

EMP Goal 7,EMP Goal 12

2,500

ITEM: Instructional supplies

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1

20

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In Progress

Faculty would like to to defer this item to another year. They would like to do more research on what specific items they need for new experiments.

2021 - 2024

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Manual seed sprouters

3-tiered seed sprouter for BIO-3, BIO-5, and BIO-8.

EMP Goal 7,EMP Goal 12

640

ITEM: Equipment, Technology, Services, Software, Furniture

Approved

2021 - 2024

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Warranty on autoclave expires in January 2022

Autoclave maintenance contract (renewed annually or other regular cycle).

EMP Goal 7,EMP Goal 12

8,000

ITEM: Equipment, Technology, Services, Software, Furniture

Instructional Equipment Allocation,Lottery Instructional Supplies,General Fund

Program Review: Part 1

22

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In Progress

APPROVED

2021 - 2024

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Yes

2022 - 2023 Update

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Yes

Resource Requests