



The mission of Merritt College is to enhance the quality of life in the communities we serve by helping students to attain knowledge, master skills, and develop the appreciation, attitudes and values needed to succeed and participate responsibly in a democratic society and a global economy

## 2020-2021

# Annual Program Update

## BIOSCIENCE

### I. Introduction and Directions

The Peralta Community College District has an institutional effectiveness process which consists of the following components: a District-wide Strategic Plan which is updated every six years; Comprehensive Program Reviews which are completed every three years; and Annual Program Updates (APUs) which are completed in non-program review years. While there are individualized Program Review Handbooks for Instructional units, Counseling, CTE, Library Services, Student Services, Administrative units, and District Service Centers, there is one Annual Program Update template for use by everyone at the colleges which is completed in the Fall semester of non-program review years.

The Annual Program Update is intended to primarily focus upon planning and institutional effectiveness by requesting that everyone report upon the progress they are making in attaining the goals (outcomes) and program improvement objectives described in the most recent program review document. The Annual Program Update is therefore a document which reflects continuous quality improvement. The Annual Program Update serves a critical role in the Integrated Planning and Budgeting cycle of the college in that it provides a vehicle in which to identify and request additional resources that support reaching the stated goals (outcomes) and program improvement objectives in the unit's program review.

*Throughout this document, the term "program" is used to refer to any of the following*

institutional structures: discipline, department, program, administrative unit, or unit.

If you have questions regarding data, please contact Nathan Pellegrin, Director of Research and Planning ([npellegrin@peralta.edu](mailto:npellegrin@peralta.edu)).

If you have questions regarding SLOs, PLOs, SAOs or ILOs, please visit the [SLOAC webpage](#), or contact the SLOAC committee member for your division:

Division 1 - Evan Nichols ([anichols@peralta.edu](mailto:anichols@peralta.edu))

Division 2 – Laura Forlin ([lforlin@peralta.edu](mailto:lforlin@peralta.edu))

Division 3 – Heather Casale ([hcasale@peralta.edu](mailto:hcasale@peralta.edu)).

If you have questions regarding the curriculum section, please contact Nghiem Thai ([nthai@peralta.edu](mailto:nthai@peralta.edu)), chair of the [Curriculum Committee](#).

If you have questions regarding other material in the APU, please contact your Dean or Manager.

This document contains hyperlinks to external documents, spreadsheets, and data dashboards. Some of the links will not work unless you are signed in to Office 365 through the [Peralta Faculty & Staff Portal](#).

You will need the following items in order to complete the Annual Program Update document at the colleges:

- [Program Review or APU document](#) from AY 2019-20.
- [Budget Information](#) for the current and prior fiscal year.
- Any comments or feedback provided during the program review validation process.
- College Goals and Peralta District Goals (see below).
- [Institution Set Standards](#).
- [College 2018 Educational Master Plan Update](#).
- [Guided Pathways Plan](#)
- [Student Equity Plan](#).
- Data drawn from program review dashboards and/or other sources relevant to your department, service area or administrative unit (see below).

### **Merritt College Institution-Set Standards 2020-2021**

Institution-set standards are used to evaluate the quality of the institution as to success with respect to student achievement in relation to the institution's mission. The evaluation of student achievement performance may include different standards for different programs, as established by the institution.

<b>Metric</b>	<b>Definition</b>	<b>Set Standard</b>
Course Completion (Success)	the number of student completions with a grade of C or better divided by the number of student enrollments	66%
Certificates	Number of certificates earned in an academic year	222
Degrees	Number of associate degrees earned in an academic year	322
Transfer	Number of students who transfer to a 4- year college/university	187

Licensure (CE)	Examination pass rates in programs for which students must pass a licensure examination in order to work in their field of study	70%
Employment (CE)	The job placement rate of student completing a degree or certificate in a CE program in the year after graduation.	Macro-Region Employment Rate, by Program SOC

## **College Profile**

### Student Body Demographics

	2017-18	2018-19	2019-20
Annual Unduplicated Count of Students	12,336	12,861	12,130
<b>Gender</b>			
Female	64%	64%	63%
Male	34%	34%	34%
Decline to State/ Unknown	2%	2%	3%
<b>Race/Ethnicity</b>			
American Indian	< 1%	< 1%	< 1%
Asian	19%	20%	19%
Black / African American	23%	23%	22%
Hispanic / Latino	31%	32%	33%
Pacific Islander	1%	< 1%	< 1%
Two or More	5%	6%	5%
Unknown / NR	4%	4%	5%
White	16%	16%	15%
<b>Age</b>			
18 and Under	15%	15%	16%
19-24	35%	35%	35%
25-29	16%	17%	16%
30-34	11%	11%	11%

35-54	17%	17%	17%
55 and Over	6%	6%	5%

### Course Success Rates

	2017-18	2018-19	2019-20*
Total Enrollment (Duplicated Count)	33,288	33,637	32,928
Overall Success Rate	70%	70%	68%
<b>Gender</b>			
Female	70%	70%	69%
Male	69%	69%	66%
Decline to State/ Unknown	77%	74%	64%
<b>Race/Ethnicity</b>			
Black/African-American	62%	62%	60%
Asian	81%	80%	81%
Hispanic	68%	68%	64%
Native American	66%	72%	53%
Pacific Islander	61%	71%	63%
Two or More	65%	67%	68%
Unknown	72%	73%	66%
White	78%	78%	75%
<b>Age</b>			
Under 16	83%	91%	84%
16-18	73%	75%	69%
19-24	65%	66%	64%
25-29	70%	69%	68%
30-34	73%	73%	73%
35-54	74%	73%	71%
55-64	74%	71%	66%
65 and Over	77%	77%	60%

\*Includes 'EW' grades



## II.

### Program Overview

#### **Mission Statement**

Please verify the mission statement for your program. If your program has not created a mission statement, provide details on how your program supports and contributes to the College mission.

The Merritt Bioscience Department provides access to fulfilling, well-remunerated careers in the biotech and biomedical fields, through hands-on training on cutting-edge equipment, with a focus on increasing diversity in science.

#### **Faculty and Staff**

List your Faculty and/or Staff. Indicate if they are part-time or full-time. (If names are already listed, they were imported from last year's APU/PR. Add or remove persons as needed to reflect current personnel).

Name	Faculty/Staff	PT/FT
Gisele Giorgi	Faculty	FT
Feather Ives	Faculty	PT
Candy Mintz	Faculty	PT
Derek Leong	Faculty	PT
Daniel Michael	Faculty	PT
Shirley Pan	Faculty	PT
Yohannes Kidane	Faculty	PT
Nathan Peabody	Faculty	PT
Theresa Halula	Faculty	PT
Angela Lane	Faculty	PT
Karen Wedaman	Faculty	PT
Cilff Cockerham.	Faculty	PT





### III.

### Program Goals

In this section, indicate programs goals, the status of each, and how they align with College and District strategic goals. Following are the strategic goals for Peralta CCD and Merritt College.

#### Peralta District Strategic Goals

1. Advance student access, equity, and success.
2. Engage and leverage partners.
3. Build programs of distinction.
4. Strengthen accountability, innovation, and collaboration.
5. Develop and manage resources to advance our mission.

#### Merritt College Strategic Goals

- M1. **Completion** - Increase number of degrees and certificates by 20% over the next 5 years.
- M2. **Transfer** - Increase transfers to CSU and UC by 6% annually. (Reach approx. 35% in 5 years).
- M3. **Time to Completion** - Reduce the number of excess units earned by students.
- M4. **Employment** - Maintain at least 82% of students attaining employment in the field of study.
- M5. **Equity** - Reduce the achievement gaps for African-American, multiethnic, and male students.

Below are your Program Goals from your most recent Program Review or APU, if available. Indicate whether the goal has been completed (C), is in progress (IP), no longer applicable (NA), or new (NEW). Be sure to state goals which are *measurable* and *time-based*. Indicate which College and District goal your program goal aligns to. If your goal has been completed, what evidence supports completion of this goal? How did you measure the achievement of this goal?

Program Goal	Stat at us  (C, IP, N A, NE W)	Applicable College Goal(s)	Applicable District Goal(s)	If completed, describe supporting evidence, including measurements of achievements.
<p>1. One additional <b>Full-time Faculty position:</b> not completed yet. We were delighted to be included on the prioritization list for ft hires in the past. However, the district cuts made us unable to hire a ft instructor. This has been a PR and APU goal for years. We will join in the faculty prioritization process through the CDCPD again, as we have done every year. I have pushed back my retirement by one year. We have 3 complex programs, 11 adjuncts (and we are hiring 2 more), and only 1 full-timer on the edge of retirement. The 3 Biosci programs need stable, long term leadership.</p>	IP	M4, M5	1, 3, 4, 5	

<p><b>2. Permanent technician (staff).</b>  We are stretched very thin by the lack of technical (and clerical) staff. The need for technical staff has been a major component since the beginning our programs. We managed to make do with part-time staff for the first eight years, but have had no technical assistance, even part-time, for the last THREE years. We have complex programs with a lot of specialized equipment. Our students, equipment, and faculty morale are suffering. The transition to online instruction due to the pandemic put extreme pressure on our faculty: we teach very specialized topics, and there were NO online labs available, so we had to completely develop online labs, including demos, and at home kits.</p>	IP	M4, M5	1, 3, 4, 5	
<p><b>3. HT clinicals:</b> we were finally on track to clear up the backlog of clinical rotations by Summer 2020 but got derailed by the pandemic. Our excellent new HT PD, Feather Ives, has developed a solution, in collaboration with the HT AB and accrediting agency, NAACLS: in house competencies. This requires considerable effort to prepare and run, and one piece of key equipment which we are requesting below.</p>	IP	M4, M5	1, 3, 4, 5	

<p><b>4. Release time to write grant: with the guidance of our Dean, we were able to recruit a grant writer to assist us. However, they were not hired in time. Gisele used her own,unpaid time to prepare the grant narrative and recruit partners. We hope to be able to accomplish this goald next year.</b> We still have a good chance to obtain the NSF-ATE \$600,000 annual grant if we get institutional support to complete it.</p>	IP	M4, M5	1, 2, 3, 4, 5	
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<p><b>5. Genomics Program innovation</b></p> <ul style="list-style-type: none"> <li>a. We had a spectacular launch of the new 30 person Advisory Board including partners from 10x Genomics, Illumina, NIH, OUSD.</li> <li>b. We have successfully developed the curriculum reboot and are in the process of obtaining state approval for 2 new, stackable certificates.</li> <li>c. Genomics faculty expanded to include Gisele Giorgi, Daniel Michael along with Theresa Halula, Angela Lane and Karen Wedaman.</li> <li>d. Karen Wedaman took the lead in coordinating genomics lab prep, and updating, maintaining and reorganizing the supplies, equipment and labs at 860 Atlantic.</li> <li>e. We weathered a difficult, draining issue around clarifying to the district the vital need to continue to use the Merritt College Genomics facilities and equipment at 860 Atlantic.</li> <li>f. Gisele Giorgi has developed an ongoing online internship for our students in whale genomics with scientist Eric Edsinger at the Salk Institute.</li> <li>g. Feather Ives connected us (for guest lectures and internships) with remarkable genomics labs run by BIPOC at Cal, including the Vasquez-Medina lab and the Lewis lab.</li> <li>h. We are launching a new online course in genomics, Biosci 50, Genetic Diseases, taught by Candy Mintz. This course articulates with CSU.</li> <li>i. Theresa Halula applied for several mini grants for genomics equipment, including through the Simons Foundation.</li> <li>j. We lost the successful, long-time dual education partnership with Encinal HS, led by Angela Lane, due to</li> </ul>	IP	M1, M2, M3, M4, M5	1, 2, 3, 4,5	
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<p><b>6. Microscopy Program Innovation</b></p> <p>a. Our graduates are contributing significantly to diversifying the field of bioscience microscopy. Thanks to BLM protest there is an increased awareness of anti-racism issue in science. Feather Ives and Gisele Giorgi are working on obtaining support from CZI.</p> <p>b. Feather Ives is developing summer 2021 Internships with BioHub, Genentech, UCSF.</p> <p>c. Feather Ives and Gisele Giorgi continue to work with BINA on Core Connect, and to increase diversity and representation in Microscopy</p> <p>d. Feather Ives was invited to be part of a successful grant pioneering science innovation in education.</p> <p>e. Feather Ives, in partnership with science pioneer George Langland and the PAIR-UP mentoring project for African Americans in Microscopy, is launching the international #BlackinMicroscopy week on Twitter.</p> <p>f. Candy Mintz and Feather Ives are developing Biosci 105 and 106, two new fully online courses in Digital Imaging and Data Analysis, which will become the stackable, third CoA.</p> <p>g. Gisele Giorgi and Daniel Michael are collaborating with Adam Balogh of Laney Manufacturing on a pilot project to 3-D print fluorescent microscopes.</p> <p>h. Nate Peabody and Derek Leong have successfully repaired, maintained and installed confocals, the SEM, and a multitude of our other imaging systems, making a significant dent in the issues caused by the 3 year lack of a program technician. Without their extensive efforts we would not have been able to conduct our classes.</p>	IP	M1, M2, M3, M4, M5	1, 2, 3, 4,5	
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<p><b>7. HT Program Innovation</b></p> <p>a. Feather Ives was approved by NAACLS as the HT PD.</p> <p>b. Feather Ives, Candy Mintz, Yohannes Kidane and Gisele Giorgi have reviewed the HT CoA and updated the courses required.</p> <p>c. Thanks to Marie Amboy, Nancy Moreno, and the HT leadership team, the chemical hoods in S118 were finally fixed.</p> <p>d. Feather Ives launched the first online version of Biosci 9, General Histology.</p> <p>e. Feather Ives obtained NAACLS approval for the development of in-house competencies in lieu of clinical rotations when necessary (e.g. during a pandemic)</p> <p>f. Candy Mintz brought on board several new clinical rotation sites. Thanks to her prodigious efforts we were finally poised to end the chronic backlog of students eligible for the rotations, until the pandemic shut down all of our partner sites.</p> <p>g. Graduates of MHP have been employed at Exact Sciences, Kaiser, BioCare, Correlia, Acepix, cannabis startups, etc. with an average starting wage of \$35/hr.</p>	IP	M1, M2, M3, M4, M5	1, 2, 3, 4,5	
<p><b>8. Increased productivity of Bioscience Department</b></p>	C			

<p><b>9. Transition to online education due to the pandemic</b></p> <p><b>“Extensive hands-on experience on cutting edge equipment” is at the core of our mission. Furthermore, the 3 fields we teach are highly specialized: fluorescence microscopy, in particular, is taught nowhere else in the world as part of a College curriculum. This made delivering quality, relevant instruction extraordinarily difficult during the pandemic. We feel that we have risen to the challenge.</b></p> <p><b>a. Our phenomenal team of dedicated instructors came together in March and co-developed an online series of modules on the COVID pandemic for the students in several of our courses.</b></p> <p><b>b. We developed protocols for safe in-person lab and successfully implemented them in MHP and MMP courses in June 2020.</b></p> <p><b>c. In the Fall, with a phenomenal amount of effort, creativity, determination and skill we pioneered at home instruction with microscopy kits (Gisele Giorgi, Derek Leong, Candy Mintz, Nate Peabody), and genomics home kits (Theresa Halula), along with remote microscopy (Nate Peabody) and the development of completely novel online labs (Candy Mintz, Daniel Michael, Feather Ives, Gisele Giorgi).</b></p> <p><b>d. Candy Mintz and Feather Ives had excellent training in online pedagogy due to being part of the OEI grant and provided extensive, invaluable support and guidance to the Biosci team.</b></p>	IP	M4, M5	1,3,4,5	
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#### IV.

### Facilities Utilization

Describe your current utilization of facilities, including labs and other space. Confirm previously reported content.

We are housed at **2 locations**: the S building suite (S111, S112, S116, S117, S118, S120) and the 860 Atlantic labs.

**We house 2 programs in the space for one in the S building and are in significant need of new facilities for the Merritt Histotech Program.** The S Building suite was designed (by us!) for the Merritt Microscopy Program (MMP), but it also houses the Merritt Histotech Program (MHP). This space is completely overutilized: we already reduced our footprint when we moved from the D building to the S building (by 1/2) and we doubled our usage, by adding a new program (MHP). **The MHP is in need of ~4,000 sf of space, ideally in the first floor shelled space.**

Also, building maintenance issues are a chronic source of problems: the hoods are still not correctly ventilated (as per erroneous building design), and there are chronic leaks in S110.

The Merritt Genomics Program is housed at 860 Atlantic:

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olde:

the space is underutilized.

We have

been limited by the low number of courses we are allowed to run: we have the faculty to hold more classes, several HS that are interested in DE partnerships, plus we have community partners who are interested in lab rental. We will pursue these options with Merritt administrators.

**We desperately need a full-time technician.** We have several millions of dollars worth of equipment (purchased and donated). Thus, we are able to fulfill our mission and provide hands-on training on cutting edge equipment. However, we do not have the personnel necessary to maintain the equipment and to assist instructors with course preparation for their labs. This is a bit ironic, since our programs actually train technicians who are seen as necessary hires at facilities with much less equipment. The faculty has done much of the maintenance and repair work for the last several years, leading to high levels of burnout. The COVID Pandemic strained our limited resources even more: we still use the labs to prepare demos, collect data and prepare at home kits for the students. We very much need a permanent technician in order to properly maintain the fantastic equipment and high level of training which is vital to our programs and to the employability of our students.



## V.

### Program Update Data

In this section you will review and reflect upon the data for your program. Use data which measure performance on outcomes relevant to the mission and goals of your program, which will vary according to which area of the college your program is in.

In your response, refer to data applicable to your program obtained from the APU dashboards and/or other sources.

#### APU Data Dashboards:

- [Course Completion and Retention Rates Dashboard – Instruction](#)
- [Course Completion and Retention Rates Dashboard – Student Services](#)
- [Enrollment Trend and Productivity Dashboard](#)
- [Degrees and Certificates Dashboard](#)

*For departments or programs in the Student Services area,* refer to reports provided by institutional data systems (i.e., PeopleSoft or SARS), results of student surveys, or external reports (i.e. [IPEDS](#) or [Launchboard](#)). Include the number of students served over an academic year and summarize their demographics.

*For departments in the Business and Operations areas,* use data which track the key function provided to the College, such as facilities usage for events, tickets received and closed, the number of invoices process or the time to disbursement.

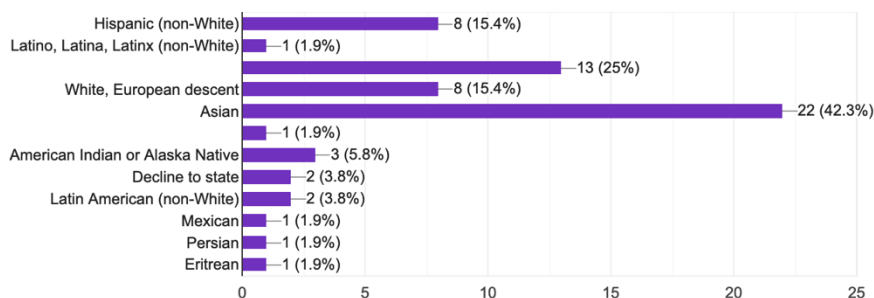
Use historical data (3 years is recommended, if available) to estimate a baseline, then use this to project activity and inform requests for the coming year.

Describe any significant changes and discuss what the changes mean to your program. Consider whether performance or service gaps exist for disproportionality impacted students. Focus upon the most recent year and/or the years since your last comprehensive program review. Cite data points from the program review dashboards or other data sources relevant to your service, business, operations or administrative area to support your answer. If you wish, you may include screenshots of the dashboard to show filtered results containing the relevant figures. Instructions on taking screenshots for [Windows](#) and [Mac](#))

Feather Ives was selected to be the Histotechnician Program Director. Feather is a program graduate who used this program to successfully change careers. She serves a role model for students who want to repeat this path. She is a Black woman which bodes well for our program to lead in recruitment of those underrepresented populations in the STEM field which is a local, national, and global effort. Just her being in the lead on recruitment and putting her Career Change Story video on the web site, the department has seen a significant increase in the enrollment of Black (25%) and Latinx (22%) students. Twenty five out of 53 students in our incoming cohort identify as Black or Latinx. That is significant. She is organized, and has a vision for both the Histotechnician Program and the Bioscience department as a whole based on departmental data.

How do you identify in terms of cultural, ethnicity, or race? You can check multiple boxes or enter in a more specific option not listed.

52 responses



### Service Gaps:

For students completing the final non-COPED courses, there is a 84% employment rate for trainees (26/31 trainees). The remaining students who are unemployed require additional support in all areas of the job search: looking for the job, networking. Additionally, they are English language learners and face that as a barrier. We have partnered with Kelly Scientific to work with them to aid with their search and overcome that barrier as well work with new trainees seeking their first entry-level position.

One hundred percent of these 31 students completed the initial stackable certificate of Achievement in Optimal Microscopy, and yet this will not be reflected in our course completion and retention rates data. Auto-awards are imperative for working CE students. This would also free up Counseling to do important work. We would love and prefer to do batch processing for these Certificate of Achievements for students to ensure they get done so data is accurate. Some FAS support this and some seem to not.

Describe the program's progress on Service Area Outcomes and/or Administrative Unit Outcomes (AUOs) since the last Program Review or APU. For instructional programs, describe the program's progress on Student Learning Outcomes (SLOs) and, if your discipline offers a degree or certificate, please describe the department's progress on Program Learning Outcomes (PLOs).

After reviewing our Program Learning Outcomes, the Histotechnician program needed revisions. Those revisions will better align the program with the ASCP Board of Certification Histotechnician exam requirements. The program was too large and thus too long. The Genomics program is also being revised to result in better SLOs and PLOs.

Describe the **results of** your department/program/service assessment of student and Program Learning Outcomes/AUO/SAO. Indicate when and where dialogue is occurring. Discuss **changes/updates/resource requests** made to your program based on the assessment of outcomes of the SLOs/PLOs/SAOs/AUOs assessed in the past year and discuss their alignment with the [ILOs](#).

The Histotechnician PLO include: Identify tissues as well as prepare tissue samples for analysis following ASCP/NAACLS guidelines; Demonstrate good laboratory practices, as well as skilled handling of histotech, microscopy and genomics laboratory equipment, including trouble-shooting. The courses and SLOs for those courses were discussed among Dept Director Gisele Giorgi, Lab Instructor Yohannes Kidane, and Program Director, Feather Ives and AB members Carola Howe (Kaiser); Jennifer MacDonald (Mt. Sac); Carmina Epsiratu (Genetech Histopathology); and Laila King (Personalis). The discussion about adjustments to the SLOs were happening monthly and a final conclusion was made. Biosci 57 will be dropped from the course requirements; Biosci 50 – Genetic Diseases can be accepted in lieu of Biosci 30. The PLOs remain the same. SLOs for Biosci 9 Histology have been submitted for revision to align with DE learning.

For Genomics, that is an ongoing discussion between the entire department in partnership with the advisory board. A complete revised certificate will be offered with revised PLOs.

For Microscopy, those SLOs and PLOs are reviewed mid-semester and again the past two weeks in preparation for the APU. Department faculty agreed that the most recent revision for the program, the PLOs and SLOs are relevant.

The following item is for instructional programs only

Discuss how your PLOs align with the [ILOs](#).

Our many PLOs align with ILOs with some examples below:

Communication – in at least one class for every program, students present their coursework to their peers

Critical Thinking – All of our programs are designed to train students to use critical thinking skills so they can go confidently into the workforce to either troubleshoot or simply state that they cannot solve a problem on their own which is an important part of critical thinking especially in life sciences and clinical laboratory science.

Cultural Awareness is built into our programs with discussions about environmental racism and justice, social justice; we also have a racially and gender diverse faculty. We represent the change we wish to see in science training programs.

Information and Computer Literacy is required in our SLOs as our microscopes utilize complex software that students must master.



## **VI. Curriculum**

**Note: If your department, program, or unit does not have a curricular component, please skip to the Section VII.**

Curriculum review is an integral part of the program review process. Instructional departments and programs must consider the state of their curricula (i.e., courses, certificates, and degrees) in order to engage in meaningful assessment, planning, and continuous quality improvement.

In accordance with the [State Chancellor's Office Program and Course Approval Handbook \(7th Edition\)](#), California community college curricula must meet five criteria:

1. Appropriateness to the mission of the California Community Colleges (as established in [California Education Code § 66010.4](#))
2. Community, service area, or student need
3. Adherence to accreditation and higher education standards
4. Availability of adequate resources to maintain the course or program (including offering all required courses for a program at least once every two years)
5. Compliance with federal and state statutes and regulations (notably Title 5 of the California Code of Regulations)

PCCD [Board Policy 4020](#) and [Administrative Procedure 4020](#) require that curricula be evaluated regularly through program review and annual program updates on a three-year cycle. For Career Education programs, however, this policy is superseded by [California Education Code § 78016\(a\)](#), which requires reviews every two years.

This section of the APU requests information about the status of course and program updates, improvement plans based on curriculum review, and prospective curriculum development. The Curriculum Committee shall evaluate the responses as part of the validation of APU completion and the prioritization of resource requests.

### **Curriculum Review**

Consult [CurriQunet](#) and the [Course Curriculum Review Status](#) or [Program Curriculum Review Status](#) spreadsheets to determine when a course or program was last updated or deactivated.

Courses that have not been offered in the past three years should be deactivated to ensure that the college catalog presents a current and accurate inventory of actual course offerings at Merritt. Likewise, if certificates and degrees have not been awarded in recent years, or the required courses have not been offered regularly enough for students to complete, consider the relevance and viability of those

programs for potential deactivation.

**Modifications**

Indicate courses reviewed/updated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Course Number	Course Title	Reviewer
ADJUS 21	Introduction to Administration of Justice	Elaine Wallace
BIOSC 9	General Histology	Feather Ives
BIOSC 55	Beginning Histotechniques	Feather Ives
BIOSC 56	Advanced Histotechniques	Feather Ives

Indicate programs reviewed/updated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Program Title	Program Type	Reviewer
Administration of Justice: Police Science	AA Degree	Elaine Wallace


## Deactivations

Indicate courses deactivated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Course Number	Course Title	Reviewer
ADJUS 21	Introduction to Administration of Justice	Elaine Wallace
All these courses were deactivated by Gisele Giorgi		
BIOSC	032	Good Laboratory Practices in Genomics
BIOSC	033	Research Design in Genomics
BIOSC	034	Writing for the Scientific Journal
BIOSC	035	Micro-Robotics in DNA Sequencing
BIOSC	036	Scientific Presentation
BIOSC	037	Principles of Long Polymerase Chain Reaction (PCR)
BIOSC	039	Comparative Genomics and Phylogenetics
BIOSC	040	DNA Shearing Techniques for Shotgun Sequencing in Genomics
BIOSC	042	Mining GenBank
BIOSC	048NK	Grant Writing for Scientific Proposals
BIOSC	048NR	Fluorescence Microscopy Laboratory
BIOSC	048NV	Survey of the Genomics Industry
BIOSC	048ON	Genomics Laboratory Design
BIOSC	051	Medical Genomics
BIOSC	052	Survey of Modern Medical Diagnostic Technology
BIOSC	057	Advanced Immunohistochemistry
BIOSC	060	Personalized (Desk-top) Sequencing
BIOSC	061	Sequence Analysis Using MacVector
BIOSC	062	Methodologies in Phylogenetics Using PAUP
BIOSC	063	Introduction to Character Tracing Using MacClade

BIOSC	072	DNA Sequencing using Bridge Amplification for the Illumina HiSeq
BIOSC	090	Internship in Genomics
BIOSC	848NA	Practical Histotechnology

Indicate programs deactivated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Program Title	Program Type	Reviewer
Administration of Justice: Police Science	AA Degree	Elaine Wallace
All of these programs were deactivated by Gisele Giorgi		
M - Bioscience	Illumina Hiseq DNA Sequencing	CP
M - Bioscience	Medical Genomics	CA
M - Bioscience	Phylogenetic Analysis	CP

## Curriculum Improvement

Based on ongoing curriculum review, describe plans for **program-level** improvement in terms of any of the following considerations:

- Advancing **student equity and achievement** for disproportionately impacted students.
- Fostering **intersegmental alignment** and **guided pathways** through articulation, course sequencing, and program mapping.
- Implementing innovative **pedagogies, delivery methods/modalities, or educational resources and technologies.**

With regard to course sequencing; we have designed the Histotechnician program so students who are fully prepared to can complete the entire program (not including the clinical rotation) within 1 year Summer to end of Spring. Students who need a slower-paced program can complete the courses in 2 years. We have program mapping and sequencing that is consistent and predictable for planning.

We are at the cutting edge of science and continue to use our advisory boards and professional organizations to guide our pedagogies. We have converted the lecture portion of many of courses to online and are considering other areas where this conversion would be a good fit.

## Curriculum Development

Indicate new courses to be proposed and/or historical courses to be reactivated within the next academic year (2021-2022), following the example in red. Add additional rows as needed in the table below.

Title	Description	Justification	Anticipated Effective Term
Beginning Spelunking	Introductory activity class on basic practices, equipment, and safety considerations in the exploration of caves	[Assessment data, student demand or need, academic/occupational knowledge or skills not taught in existing curricula, program requirements, community or industry partnerships, grant funding, etc.]	Fall 2022
Biosci 105	Data Set Analysis in Bioscience	increase employability, high demand for skills, OEI grant	Fall 2022
Biosci 106	Digital Image Analysis in Bioscience	increase employability, high demand for skills, OEI grant	Fall 2022

Indicate new programs slated for development within the next academic year (2021-2022), following the example in red. Add additional rows as needed in the table below.

Title	Description	Justification	Anticipated Effective Term

Outdoor Recreational Activities Not for the Faint of Heart	Certificate of achievement to train daredevil students seeking a lifetime of adrenaline rushes in the great outdoors. Courses include bungee jumping, rock climbing, sky diving, spelunking, and ziplining.	[Basic skills, occupational, or transfer pathways; advisory board recommendations or LMI data; community or industry partnerships; grant funding, etc.]	Fall 2022
Certificate of Achievement in Genomics	Biosci 30 (Intro to Genomics) and Biosci 31 (Advanced Genomics); fundamentals of molecular biology, genomics and sequence analysis.	Reboot of genomics certificates after a decade, and per new Advisory Board and industry demand.	Fall 2021
Certificate of Achievement in Genomics Research	2 new courses: Biosci 70, Emerging topics in Genomics, and Biosci 71, Genomics Research Practicum	Reboot of genomics certificates after a decade, and per new Advisory Board and industry demand.	Fall 2021
Certificate of Achievement in Data Analysis in Bioscience	Biosci 106, Data Set Analysis in Bioscience (survey of techniques and related data analysis) plus Biosci 106, Digital Image Analysis in Bioscience (morphometric analysis of imaging data sets).	Big data management is emerging as a critical skill for a biotech technician, as per Advisory Board recommendation. This certificate is developed through the OEI grant, and in conjunction with open microscopy consortium experts.	Fall 2022

The Curriculum Committee shall prioritize the review and approval of new courses and programs that are identified in this section of the APU.

**VII. Funded Resources**

For each resource allocation request from previous year's APU, indicate whether it was funded. Describe the outcomes and accomplishments for any requests which were funded.

Brief description of resource request	Was request funded? (Yes or No)	Funding Source (Specify Fund or Grant)	Total Award Amount	Outcome/ Accomplishment





## VIII. Resource Requests

In the tables below, please add resource requests for your program for the **2021-22 fiscal year**. Indicate if the request is being made as part of the response to the COVID-19 pandemic. If you are submitting multiple requests under the same category, prioritize them by assigning a rank to each request ('1' indicating the highest priority request). Include only one request per row; if additional rows are needed, insert new rows in the table ([how to add rows](#)).

### Personnel Resource Requests

<b>Personnel Sub-Category</b> (Full-Time or Part-Time Faculty, Classified, Student Worker)	<b>Description/Justification</b>	<b>Percentage</b>	<b>Estimated Annual Salary Costs</b>	<b>Estimated Annual Benefits Costs</b>	<b>Total Estimated Cost</b>	<b>Priority Rank (1=Highest priority)</b>	<b>COVID-19 Related (Yes/No)</b>
<b>FT faculty</b>	We very much need a FT hire! We have 3 complex, vibrant, successful programs, powered mostly by 11 phenomenal adjuncts and only 1 full-timer who is at retirement age. We lost a full-timer 4 years ago and still haven't been able to replace the position.	100%	\$90,000			1	

<b>Personnel Sub-Category</b> (Full-Time or Part-Time Faculty, Classified, Student Worker)	<b>Description/Justification</b>	<b>Percent Time</b>	<b>Estimated Annual Salary Costs</b>	<b>Estimated Annual Benefits Costs</b>	<b>Total Estimated Cost</b>	<b>Priority Rank (1=Highest priority)</b>	<b>COVID-19 Related (Yes/No)</b>
<b>PT technician, permanent</b>	<p>We have 3 programs, 2 locations, over 24 imaging stations, millions of dollars in donated and purchased equipment, and no technician for the past 3 years. The equipment is in dire need of regular maintenance. Overworked adjuncts are called upon to supplement this dire gap. If we followed industry standards for our labs, we'd have FOUR FULLTIME TECHNICIANS!</p>	50%	\$40,000			2	

## Resource Requests (Non-Personnel)

### Resource Categories

- Professional Development (Department wide)
- Professional Development (Personal/ Individual)
- Required Reasonable Accommodation
- Service Contract
- Supplies: Softw
- are
- Supplies: Books, Magazines, and/or Periodicals
- Supplies: Instructional Supplies
- Supplies: Non-Instructional Supplies
- Supplies: Library Collections
- Technology & Equipment: New
- Technology & Equipment: Replacement
- Other

<b>Resource Category</b> (select from above list)	<b>Description/Justification</b>	<b>Total Estimated Cost</b>	<b>Priority Rank</b> (1=Highest Priority)	<b>COVID-19 Related</b> (Yes/No)
Supplies: instructional	Regular supplies (for Fall 2021)	\$6,000	1	No
Supplies: instructional	Extra supplies for at home kits for microscopy and genomics courses for Spring 2021 (to be further used by future classes and Scope 2 Schools).	\$12,000	1	YES
Equipment: new	Equipment for at home kits for microscopy and genomics, including 3-D printed microscopes, ocular adapters, foldscopes, for Spring 2021 (to be further used by future classes and Scope 2 Schools)	\$6,000	1	YES
Equipment: new	Slide Stainer to be able to do in house competencies for HT, due to COVID, and to pass accreditation Site Visit in 2021.	\$8,000	1	YES

Equipment: update	6 PC computers capable of running zoom so we can do demo's for synchronous online Microscopy and Genomics courses, due to COVID, since our current computers are a decade old. (Note we'll take existing computers if the school has any available.)	\$6,000	1	YES
Equipment: new	High Throughput Slide screener for use by Microscopy students and partners of student run company, Advanced Microscopy Institute.	\$150,000	3	no
Equipment: repairs	Annual repair for Histotech, Microscopy and Genomics equipment.	\$6,000	1	no
Supplies: Software	We need software (Clarity Pro, Adobe Suite) for online instruction and up to date training of our students.	\$8,000	1	YES
Facilities: genomics lab spaces	It is imperative that we have continued sole occupancy of the Merritt Annex at 860 Atlantic Avenue, in order to prepare home kits and do demos for courses, and to launch the CSO Diversity Genomics			
Facilities: HT lab spaces	The HT program currently occupies the space designed for the Microscopy Program: we need to plan the S building first floor shell space buildout for the HT program and the eventual relocation of the genomics program to the S building.			
Facilities: offices	Our adjuncts would like to share a cubicle on the 4th floor of the S building when we return to in person classes.			

## **IX. Participants**

Please provide the list of members who participated in completing this program review.

**Gisele Giorgi, Feather Ives**

**Thank you for your time and effort in completing the Annual Program Update!**