Pasadena City College Biotechnology Program

CTE Advisory Committee Meeting

3:15pm—4:52pm, Friday, June 19, 2020

1570 E. Colorado Blvd., Pasadena, CA 91106

Meeting held via Zoom

Time	Agenda Description	Facilitator	Outcome
3:17pm	**Call to Order**	Barbara Driscoll, Ph.D., Chair	Informational
3:17-3:18pm	**Welcome** **In attendance:** Barbara Driscoll, Pamela Eversole-Cire, Martha House, Marilyn Johnson, Wendie Johnston, J. Jack Whalen, Aron Kamajaya, Janet Chen, Valeria Mancino, Karol Lu, Francesca Mariani, Orenda Tuason, Marie Csete, Justin Ichida*, and Victoria Fox** **Invited Attendees**: Terri Quenzer and Salvatrice Cummo *New committee member **Victoria Fox was in attendance during the Open Discussion	Pamela Eversole-Cire, Ph.D., Program Director	Informational
3:18-3:20pm	**Approval of minutes from June 21, 2019 meeting**	Barbara Driscoll, Ph.D., Chair	Informational
3:20-3:30pm	**Introductions**	Committee Members	Informational
3:30-4:52pm	**Overview of the PCC Biotechnology Program** Curriculum and certificates **Overview of Program Metrics**: Performance of graduates Enrollment, Completion, Demographics Enrollment • 2015-16: 86 • 2016-17: 120 • 2017-18: 113 • 2018-19: 124 Completion (number of Chancellor-approved Certificate of Achievement (COA)) • 2015-16: 14 • 2016-17: 17 • 2017-18: 18 • 2018-19: 20	Pamela Eversole-Cire, Ph.D., Program Director Karol Lu, Ed.D., Program Coordinator	Presentation

	Certificate of completion (COC) in Laboratory Skills: a request to LAOCRC was submitted in February 2020 to request the COC be changed to a low unit COA that will be transcriptable and recognized by the Chancellor's Office. CIRM Outcomes: A majority (33%) of CIRM alums show immediate employment in academia. Workforce trends still indicate that research/academia jobs in Southern California (+241) and Los Angeles County (+276) will be available (5-year projection; from 2018 minutes). Demographics in 2018-2019 PCC Biotechnology Enrollment • 52% Females; 15% White; 38% Asians; 2% African American; 39% Hispanic; 4% Unknown; 2% Two or more *Biotechnology Industry Workforce • 45% Females; 59% White; 22% Asians; 4% African American; 5% Hispanic; 10% Unknown; 1% Two or more • There is racial/ethnic disparity in the biotechnology industry *Reference: *Reference: Measuring Diversity in the Biotech Industry: Building an Inclusive Workforce, January 2020, Center for Talent Innovation (CTI) and Biotechnology Innovation Organization (BIO), http://go.bio.org/rs/490-EHZ-999/images/Measuring_Diversity_in_the_Biotech_Industry_Building_an_Inclusive_Workforce.pdf?_ga=2.197341103.1867659190.1591900080-113068757.1591900080 **Overview of Labor Market Information** Workforce supply gap recognized by the Center of Excellence. Data demonstrates that there are employment opportunities in LA/OC region and a need for trainees.		
4:20-4:30pm	**Program update** **COVID-19 Response** **PCC Biotech Program:** Biotech courses were redesigned for asynchronous remote instruction. Supplemental remote instruction included demonstration of laboratory techniques accessed through JoVE, virtual laboratory simulations with Labster, online discussion boards, and a dry lab practical.	Pamela Eversole-Cire, Ph.D.	Informational

	Labster subscription is currently being paid for by Chancellor's Office for all community colleges through December 31, 2020. Biotechnology courses will be offered in an online format in Fall 2020. Current internships were interrupted (biotechnology and CIRM internships). **CIRM:** CIRM internships were redesigned for remote educational enhancement training. Five CIRM interns (after discussion with PIs) continued their internships in a remote manner (participate in online training, virtual lab meetings); two interns suspended the internship and will resume once the labs reopen. **CIRM High School Outreach:** Two high schools and one middle school completed stem cell outreach module in the Fall (prior to COVID-19); high school module demonstration laboratory was redesigned for asynchronous remote instruction in response to COVID-19. The annual one day stem cell workshop was redesigned and held virtually via Zoom (participation from GHS, CVHS, TCHS, and Bravo). **CIRM application process 2020-21:** The CIRM Bridges internship application process will be extended through December 2020. The start of the internships will be dependent on when the labs reopen and whether the labs able to take on new trainees. Former PCC biotech and CIRM alums currently working for Curative, Inc. developing COVID-19 diagnostic tests. **<u>Instructional equipment and instrument</u>** CTE Perkins funding: two microplate readers (an absorbance and a fluorescence); the instruments will be integrated into the current curriculum.	Karol Lu, Ed.D. Program Coordinator Pamela Eversole-Cire, Ph.D.	
4:05-4:52pm	**Report of committee recommendations from 2019 Meeting** **Current trends and techniques** • CRISPR kits purchased and the activity was scheduled but postponed once campus was closed to the students/public; CRISPR activity was included in Biology 102C—Cell Culture Techniques and PHSC-2 Stem Cell Journal Club	Pamela Eversole-Cire, Ph.D.	Discussion & Feedback

	Curriculum Development
	• Cell-based biomanufacturing: develop a course for cell-based biomanufacturing and related techniques; supplemental funding was used to purchase equipment that may be used in the course
	  ○ 3D bio-printer
	  ○ Live cell imaging system (bright field and fluorescent)
	  ○ Bioreactors (anticipating purchasing a plate bioreactor)
	  ○ Cryostat (sectioning of the 3D printed constructs)
	
	Supplemental Funding
	• Strong Workforce Program (SWP) and CTE Perkins funding allowed the purchase of updated and new equipment to stay current with trends and techniques, as well as develop curriculum.
	• Recent submission of CTE Perkins funding to request for benchtop sequencer.
	
	Certificate updates
	Committee members voted and approved the following certificate changes and/or modification:
	• *Certificate of Completion—Laboratory Skills* (16 units) to a low unit Certificate of Achievement—Laboratory Skills (Chancellor-approved and transcriptable).
	• *Certificate of Achievement—Stem Cell Culture* (33 units): significant updates to the curriculum requires the certificate to be modified; update/change the name of the certificate to reflect the training.
	• *Certificate of Achievement—Computational Biology* (16-17 units): curriculum changes require a certificate modification and update; Biology 28 is a course required for the COA and an updated with the option to teach the course as a hybrid, fully online, or in-person is pending.
		Committee Members	

4:20pm-4:43pm	**Open Discussion** **Workforce Development and Skills Demand** • An initiative may be on the ballot in November (and CIRM may be renewed) and training is included in the initiative. CIRM is interested in developing Bridges type programs for cell-based biomanufacturing to expand workforce development programs. With recently purchased equipment and the upcoming development of cell-	Barbara Driscoll, Ph.D. Committee Members	Discussion & Feedback

	based biomanufacturing course, the program is well-positioned to apply for funding. • Biotech program alums typically fall in two tracks: pursuing advanced degrees in academia or need/want employment in industry. Workforce development in biomanufacturing may help students who are interested in employment Bio Fab USA (New Hampshire) might be interested in supporting or providing networking opportunities in biomanufacturing for workforce development. **Biotech industry skills demand** Some community colleges are developing or have biomanufacturing programs, the jobs pay well and there seems to be mobility within the companies who are looking for trained students in biomanufacturing. Current workforce trends include 'project management' type jobs (in demand); Caltech may be offering project management type course in the future Is there an opportunity for the program to contribute to workforce development to increase regional ability to do COVID-19 diagnostic testing in the foreseeable future? • The basic skills acquired in the program allow students to build/develop similar skill sets (e.g., Biology 102A, 102C). The two students who are working at Curative were not only former biotech and CIRM students, they worked at USC for a year before working at Curative. Is the program recruiting through the high outreach activities (in response to the program diversity information presented)? • One of the goals of high school outreach is to recruit students from local community who may be looking at a community college path after graduation. Other students take the introductory course concurrently to receive college credit (Biology 110) and gain lab skills that may be useful in their undergraduate career as they enter college. **Occupational projections** The program plans to integrate emerging skills and contribute to supply gap with students who will be trained in skill sets that are in demand.		

	Diagnostic testing as an emerging occupation in the industry may stay, even after COVID-19. Diagnostic testing as a career, understanding PCR, and understanding regulatory workflows may be very useful.		

4:43pm	**Meeting Summary**
	• Program overview
	• Program metrics
	  ○ The demographics of student enrollment in the program reflects similar demographics to that of PCC campus-wide enrollment
	  ○ Employment demographic data in the biotechnology industry demonstrate disparity in diversity
	• Current trends and techniques; curriculum development; supplemental funding
	• Workforce and skills demand; occupational projections
	  ○ Add cell-based biomanufacturing component to enhance the strength of the program (providing students with training in stem cell culture); add regulatory workflows and GMP to current curriculum; emphasize basic skills that may prepare students for emerging careers in diagnostic testing
	• Certificate updates
	  ○ Committee voted to approve the request to modify and/or update 1) *COA—Stem Cell Culture*, 2) *COA—Computational Biology*; committee voted to approve the request to update the *current* 3) *Certificate of Completion—Laboratory Skills* to a low unit Certificate of Achievement that is Chancellor-approved and transcriptable.
		Karol Lu, Ed.D.	

4:52pm	**Adjournment**	Barbara Driscoll, Ph.D.	