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2018-19 Annual Program Review Update Submitted By: Terrence Mullens

APRU Complete for: 2018-19

Program Mission Statement: The meteorology program provides students with an in-depth knowledge of Earth's atmosphere, its associated weather and global climate processes. The program enables students to understand the scientific, societal and economic impacts of weather with an emphasis on global warming and climate change.

I.A.1 What is the Primary Focus of Your Program?: Transfer

I.A.2 Choose a Secondary Focus of Your Program?: Personal Enrichment

I.B.1 Number Certificates of Achievement Awarded:

I.B.2 Number Certif of Achievement-Advanced Awarded:

I.B.3 #ADTs (Associate Degrees for Transfer) Awarded:

I.B.4 # AA and/or AS Degrees Awarded:

I.B.5 Strategies to Increase Awards :

I.C.1. CTE Programs: Review of Perkins Core Indicator and SWP Outcomes Metrics:

I.C.2 CTE Programs: Labor Market Demand and Industry Trends ::

I.D.1 Academic Services & Learning Resources: #Faculty served:

I.D.2 Academic Services & Learning Resources: #Students served:

I.D.3 Academic Services & Learning Resources: #Staff Served:

I.E.1 Full time faculty (FTEF): 1.9

I.E.2 #Student Employees:

I.E.3 Ratio % of Full -time Faculty Compared to % Part-time Faculty Teaching: 53.8%

I.E.4 # Staff Employees: 1. Ching Bays, the PSME division's computer laboratory administrator has been invaluable in assisting the department with both technical issues and the improvement of the Meteorology department website.

I.E.4 #Staff Employees:

I.E.5 Changes in Employees/Resources: A new full-time faculty member was hired in Spring, 2017. The changes in % Full-time for this program review reflects this.

II.A Enrollment Trends: Enrollment in the Meteorology Department courses has varied as follows: 756 (2013-2014) and 758 (2014-2015), 769 (2015-2016), 584 (2016-2017), and 713 (2017-2018).

There was a decline in enrollment in 2016-2017. During 2016-2017, our previous full time faculty member had retired, sending the department into a transition phase that was likely the greatest cause for the decline in enrollment, particularly in Fall, 2016, when we were unable to offer any face-to-face sections. However, enrollment improved substantially in 2017-2018, and preliminary data for 2018-2019 suggest further increases in enrollment. Furthermore, through this transition period, department productivity has remained well above the division and college averages, and preliminary data for (2018-2019) suggests improvement in productivity.

Enrollment in the popular online sections has continued to remain robust, and changes made to on-campus course offerings (primarily the conversion to a block schedule) have resulted in further increases in enrollment. Furthermore, the department has implemented an online version of the Meteorology Laboratory course, which has already shown robust enrollment.

Raising awareness of the department, it's course offerings, and potential transfer/major/career opportunities to current students would likely have a positive impact on enrollment in face-to-face courses. Being located close to San Jose State, which has the only Meteorology department in the CSU system, offers unique opportunities to our department in terms of recruiting students and setting a pathway for interested students.

II.B Overall Success Rate: The overall success rate increased from 83% in 2014-2015 to 89% in 2015-2016, but decreased slightly to 88% in 2016-2017 and 2018-2019.

II.C Changes Imposed by Internal/External Regulations: Did not enact any changes relative to above.

III.A.1 Growth and Decline of Targeted Student Populations: 2017-18 Enrollment: The percentage of students in Meteorology classes that come from targeted ethnic groups has varied as follows: 22% (2013-2014), 32% (2014-2015), 29% (2015-2016), 31% (2016-2017), and 32% (2017-2018). The 2017-2018 percentage was slightly lower than the college average of 36%. However, there has also been a substantial increase in the total number of targeted students enrolling (from 154 in 2013-2014 to 231 in 2017-2018).

III.A.2 Targeted Student Populations: Growth and Decline: While the enrollment of targeted students declined between (2014-2015) and (2016-2017), it increased notably in (2017-2018).

III.B.1 Closing the Student Equity Gap: Success Rates: The Success Rates for each of the populations is as follows:

African American: 68% (15 of 22)*

Latinx: 82% (115 of 140)

Filipinx: 86% (59 of 69)

Pacific Islanders: 25% (1 of 4)*

Asian: 92% (335 of 366)

White: 90% (85 of 94)

III.B.2 Closing the Student Equity Gap: Withdrawal Rates: The Withdrawal Rates for each of the populations is as follows:

African American: 23% (5 of 22)

Latinx: 16% (22 of 140)

Filipinx: 10% (7 of 69)

Pacific Islanders: 50% (2 of 4)

Asian: 6% (22 of 366)

White: 3% (3 of 94)

III.B.3 Closing the Student Equity Gap: 2017-18 Gap: Success Rates: The student equity gap has varied from 1% to 19% over the past five years, but recently has decreased from 19% in (2014-2015) to 9% in (2017-2018). The department plans on further reducing this disparity over the next year by focusing on addressing student needs on an individual basis and intervening with students who are in danger of failing. Additionally, the department is exploring options for low-cost or open source textbooks to decrease the overall cost of taking a Meteorology course, which would improve success rates for targeted groups.



Withdrawal Rates: The student equity gap in withdrawal rates has varied from 1% in (2013-2014) to 10% in (2017-2018). The department believes that the largest contributor is the increased offering of online courses, which have traditionally had larger withdrawal rates than face-to-face courses. To close the gap, the department plans to improve this gap by reaching out to struggling students early in the courses and offering them additional help.

III.C Action Plan for Targeted Group(s): 1. Incorporate assignments involving the contributions of meteorologists from diverse backgrounds. - Targeted groups: African American, Latinx, Filipinx, Pacific Islander, Asian Populations and Women.

2. Develop a protocol where students who are struggling after the fourth week of class are individually contacted by the instructor to offer assistance. All Targeted Groups will benefit from this.

3. Exploring the development of an OER/Free Textbook for all courses.

III.D Departmental Equity Planning and Progress:

III.E Assistance Needed to close Equity Gap:

III.F Integrated Plan goals: current student equity data and action plan: 3. Identify and update campus services, policies, procedures towards reducing barriers and increasing student success., 4. Engage faculty and staff in professional development activities focused on improving student success and closing the achievement gap

IV.A Cycle 2 PLOAC Summary (since June 30, 2014): Program Level Outcomes are currently being developed by the department, and will be assessed once they have been developed.

IV.B Cycle 2 SLOAC Summary (since June 30, 2014): Both Met 10 SLO's have been assessed as of Spring, 2018. Met 10 SLO 1 was assessed with a success rate of 80%, and Met 10 SLO 2 has been assessed with a success rate of 92%.

V.A Budget Trends: Funding has made it possible to continue maintaining the De Anza College Weather Station (including repairing the rain gauge prior to the 2017-2018 rain season). This data has been incorporated into both the lecture and laboratory courses.

Funding was approved in 2018 to acquire 20 Kestrel Pocket Weather Instruments. Since the acquisition of the instruments, they have been used, quite effectively in class demonstrations and field activities.

V.B Funding Impact on Enrollment Trends: A decrease in equipment funding for Meteorology would hurt our ability to offer hands-on activities during lecture and laboratory courses, which would make understanding of difficult concepts more challenging.

V.C.1 Faculty Position(s) Needed: None Needed Unless Vacancy

V.C.2 Justification for Faculty Position(s): There is an ongoing need to hire additional PT instructors to expand offerings of the popular online Meteorology and Meteorology laboratory courses. Now that the new FT faculty has successfully completed the initial two phases of the tenure process, he is comfortable teaching additional online sections to meet demand.

V.D.1 Staff Position(s) Needed:

V.D.2 Justification for Staff Position(s)::

V.E.1 Equipment Requests: No Equipment Requested

V.E.2 Equipment Title, Description, and Quantity:

V.E.3 Equipment Justification:

V.F.1 Facility Request:

V.F.2 Facility Justification:

V.G Equity Planning and Support: As there has been a substantial increase in the enrollment and demand for online courses, the department is carefully looking at how the student equity gap differs between online and face-to-face courses. Should a noticeable difference develop, the department will consider developing resources such as tutoring and supplemental instruction to improve success in online courses.

V.H.1 Other Needed Resources:

V.H.2 Other Needed Resources Justification:

V.J. "B" Budget Augmentation:

V.K.1 Staff Development Needs:

V.K.2 Staff Development Needs Justification:

V.L Closing the Loop:

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