

Program Efficacy Team Report (Instruction)

Spring 2020

Name of Department: Physics-Astronomy-Observatory

Efficacy Team: Miguel Ortiz, Timothy Hosford, Daniel Alagattas

Overall Recommendation:

Continuation Conditional Probation

Rationale for Overall Recommendation: The Physics program shows every indication of being a strong, focused program that is well positioned to thrive in the next four years. Steady success and retention numbers, alongside a spike in the number of degrees awarded are somewhat understated in the document itself, however. Of particular note is the clean, easy to read presentation of the SLOs. While the description of assessment methods could use a bit more detail, the overall effect does the program credit. Similarly, the clean and frank assessment of the PLOs demonstrate that the program is forward-looking.

Where the document falters, unfortunately, is Part III. The bones are present, and strong. The program does not do enough to describe its participation in the myriad programs and events, or how they enhance the program or the campus.

In the Productivity section, the program also neglects to bolster its data with more than cursory analysis. Despite this, the program does seem to have a clear idea of the outlook for the program; it just needs to describe it more thoroughly.

Despite these issues, the Team recommends Continuation due to the evident strength of the program and the under-the-hood work that it seems to be undertaking to remain so.

Part I: Questions Related to Strategic Initiative: Increase Access

Goal: SBVC will improve the application, registration, and enrollment procedures for all students.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Demographics	The program does not provide an appropriate analysis regarding identified differences in the program's population compared to that of the general population.	The program provides an analysis of the demographic data and provides an interpretation in response to any identified variance.	In addition to the meets criteria, the program's analysis and plan demonstrates a need for increased resources.

		The program discusses the plans or activities that are in place to recruit and retain underserved populations as appropriate.	
Pattern of Service	The program's pattern of service is <u>not related to the needs of students.</u>	The <u>program provides</u> evidence that the pattern of service or instruction meets student needs. The program <u>discusses the plans or activities</u> that are in place to meet a broad range of needs.	In addition to the meets criteria, the program <u>demonstrates that the pattern of service needs to be extended.</u>

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Demographics—Meets: The program appears to be aware of the disparities in it's African-American and Female representation, and describes several steps the program is taking to close those gaps, including working with organizations such as the Girl Scouts as well as several events and grade-school outreach. In the case of African Americans, the program points to lower success by this group in Basic Skills acquisition. What is unclear is if by this they mean that they are less likely to come into college with the basic skills necessary, whether they have more difficulty passing Basic Skills classes, or both. The program hopes to remedy this by active participation in the Student Success Center with tutors and workshops, however this seems like it is a less-targeted approach than the program is taking with women. It seems like there are several organizations on campus and elsewhere that the Physics program could be working with on outreach, such as Tumaini.

The program does also tout its success in closing the gap in Hispanic representation over the last four years, borne out by its last report. It is to be commended for this. It notes that the extreme disparity in its <19 age group is likely due to the prerequisites that Physics and Astronomy classes have, meaning that students fresh out of high school are unlikely to meet them.

Pattern of Service—Meets: The program appears to be actively evaluating enrollment in its lectures and labs, particularly for its 101 class. The calculation at the end of the first paragraph could have been a little clearer, but the gist is communicated. The report claims that Astronomy lectures are offered all week, the chart only shows T/Th and Hybrid classes. The chart does not seem to include all classes offered, which would explain this. A complete list would have been beneficial, seeing as the supporting paragraph mentions them. They briefly mention limited lab space, but do not discuss whether this is holding them back from offering more sections at any level. Of additional note is the expansion in the 150AB--200/201 classes, which are now both offered in Spring and Fall. As we see in the EMP, overall sections have increased.

Efficacy Team Recommendations to Address Does Not Meets (if applicable): N/A

Part II: Questions Related to Strategic Initiative: Promote Student Success

Goal: SBVC will increase course success, program success, access to employment, and transfer rates by enhancing student learning.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Data/Analysis demonstrating achievement of instructional or service success	Program <u>does not provide an adequate analysis</u> of the data provided with respect to relevant program data.	Program <u>provides an analysis</u> of the data which indicates progress on departmental goals.	In addition to the meets criteria, the program <u>uses the achievement data</u> in concrete planning and <u>demonstrates</u> that it is prepared for growth.
Service Area Outcomes and/or Student Learning Outcomes and/or Program Level Outcomes: Continuous Assessment	Program <u>has not demonstrated</u> that it is continuously assessing Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and/or connection to area services is <u>missing or incomplete</u> .	Program <u>has demonstrated</u> that it has fully evaluated within a four-year cycle and is continuously assessing <u>all</u> Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs).	In addition to the meets criteria, the program <u>demonstrates that it has fully incorporated Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) into its planning, made appropriate adjustments, and is prepared for growth.</u>
Service Area Outcomes and/or Student Learning Outcomes: Disaggregated Data Analysis	Program <u>has not demonstrated</u> that it has analyzed disaggregated data for Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs).	Program <u>has demonstrated</u> that it has analyzed disaggregated data for at least two highly relevant Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs).	In addition to the meets criteria, the program <u>demonstrates that analysis of 3 or more relevant disaggregated SLO data sets support program growth.</u>

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Student Success—Meets: The program notes that success and retention numbers have remained steady despite turnover in faculty and lab technicians, which it views as an achievement. A lot of the middle section of this area seems like it would have supported the Pattern of Service, and is less focused on Student Success per se. It does demonstrate, however, that the department is not content to rest on their laurels and is actively working to make gains. It is somewhat surprising that they only briefly mention that

the number of degrees awarded skyrocketed from 1 in the 14-15 year to 19 in the 17-18 year. The program asserts that the number for 18-19 is 21 degrees, though it is not yet reflected on the EMP. This is an achievement and the program simply credits its collaboration with the Student Success Center and STEM and MESA counselors. This explanation feels overly brief, and the team feels that the program could have gone into more detail, and perhaps even link this to the expansion in classes and the revision and updating of the physical labs.

The program points out that there is a time-sensitive requirement for many professional schools, and that this is resulting in some students returning to the program in order to meet these requirements.

SLOs—Meets: This is a gratifyingly clean presentation of the SLOs. There are a couple bits that do not quite gel, particularly the Assessment Method under Physics 150B. A slightly more robust description of the assessment methodology would have strengthened this already good presentation. In general, this format could serve as a model for other departments.

Disaggregated Data Analysis—Meets: A lot of this is a reinforcement of the SLO data from earlier. Perhaps the most useful disaggregation is the comparison between Day and Evening classes, with evening students performing between 11% to 15% lower on upper level Physics SLOs. They ascribe this to the relative lack of access to evening students in the form of workshops and office hours. This seems like it would be pertinent to the program’s Pattern of Service. The program does mention the expansion of workshops to Saturdays, though how this helps evening students is unclear.

PLO—Meets: As with the SLOs, this is nicely formatted and clean. The program also mentions that they are looking at updating their first SLO due to difficulty in assessing it. This shows active engagement with the SLOs.

Efficacy Team Recommendations to Address Does Not Meets (if applicable): N/A

Part III: Questions Related to Strategic Initiative: Improve Communication, Culture & Climate

Goal: SBVC will promote a collegial campus culture with open line of communication between all stakeholder groups on and off-campus.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Communication	The program <u>does not identify</u> data that demonstrates communication with college and community.	The program <u>identifies</u> data that demonstrates communication with college and community.	In addition to the meets criteria, the program <u>demonstrates</u> the ability to communicate more widely and effectively, <u>describes</u> plans for extending communication, and provides data or research that <u>demonstrates</u> the need for additional resources.
Culture & Climate	The program <u>does not identify</u> its impact on culture and climate or the plans are not supported by the data and information provided.	The program <u>identifies and describes</u> its impact on culture and climate. Program <u>addresses</u> how this impacts planning.	In addition to the meets criteria, the program provides data or research that <u>demonstrates</u> the need for additional resources.

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Communication—Meets: The program cites its participation in a variety of campus events such as STEMAPALOOZA, as well as workshops at middle and elementary schools, planetarium presentations, etc. This participation is commendable but there is a lack of specific examples of communication: fliers, videos, etc. The web presence they mention is actually pretty anodyne and mentions none of these events nor any other non-basic information about the program. The Planetarium’s web page is more robust, however due to current circumstances there is a lack of programming being advertised. The pictures and short stories the document mentions do not appear anywhere; if they exist, they are not easily accessible. There is also no mention of other social media presence, which would be a good vehicle for such pictures and stories.

Culture and Climate—Meets: The program cites its participation in the aforementioned workshops and events, STEM Club, and campus Committees. This would have been a good opportunity to go into detail. How large is the non-Physics student participation during on-campus events? What kinds of information and activities does the program offer during these events? The Planetarium in particular is a terrific vehicle for this kind of thing but it gets a single line here.

Partnerships—Meets: The list is impressive but could use more description about what form these partnerships take and what they entail. Are the partnerships simply trading information back and forth, or do they involve specific events or initiatives?

Efficacy Team Recommendations to Address Does Not Meets (if applicable):

- Discuss specific media used to communicate and ensure that the web presence is easily discoverable and matches the description in the document.
- Instead of just listing events and campus groups the program is involved in, provide a more detailed description of how the events listed enhance the Culture and Climate of the campus overall.
- Similarly, provide more detail about what forms the various partnerships take, and how the benefit the program and it’s partners.

IV: Questions Related to Strategic Initiative: Maintain Leadership & Promote Professional Development

Goal: SBVC will maintain capable leadership and provide professional development to a staff that will need skills to function effectively in an evolving educational environment.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Professional Development	The program does not identify currency in professional development activities.	Program identifies current avenues for professional development.	In addition to the meets criteria, the program shows that professional development has impacted/expanded the program and demonstrates that the program is positioning itself for growth.

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Professional Development—Meets: Much of the listed professional development seems oriented towards building their online competency, which is laudable. Linking these activities to department goals would benefit the document immensely. Under professional organizations, outside the union only one is mentioned as current: The San Bernardino Valley Amateur Astronomers. It is unclear whether this is a campus organization or something else. They mention that it participates in outreach and viewing events but don't go into detail, nor is the organization and its events mentioned elsewhere. A more complete description of how it promotes professional development would be helpful. To the program's credit they discuss plans to join the American Association of Physics Teachers and American Association for the Advancement of Science, as well as what the benefits of membership in those organizations would be. The latter section regarding specific activities is more robust and includes names not mentioned previously (the Jet Propulsion Laboratory, Vernier Systems and their Equipment Workshops).

Efficacy Team Recommendations to Address Does Not Meets (if applicable): N/A

V: Questions Related to Strategic Initiative: Effective Evaluation & Accountability

Goal: SBVC will improve institutional effectiveness through a process of evaluation and continuous improvement.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Mission/ Statement of Purpose	The program does not have a mission/ statement of purpose, or it does not clearly link with the institutional mission.	The program has a mission/statement of purpose, and it links clearly with the institutional mission.	
Productivity	The data does not show an acceptable level of productivity for the program, or the issue of productivity is not adequately addressed.	The data shows the program is productive at an acceptable level.	The program functions at a highly productive level and has planned for growth as appropriate.
Relevance, Currency, Articulation	The program does not provide evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate. <u>Out of date course(s) that were not launched into Curricunet by Oct. 1, 2017 may result in an overall recommendation no higher than Conditional.</u>	The program provides evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program. Appropriate courses have been articulated or transfer with UC/CSU, or plans are in place to articulate appropriate courses.	In addition to the meets criteria, the program discusses plans to enhance current course offerings that link to student/community needs and positions the program for improved student outcomes.

Challenges	The program <u>does not incorporate</u> weaknesses and challenges into planning.	The program <u>incorporates</u> weaknesses and challenges into planning.	The program <u>incorporates</u> weaknesses and challenges into planning that demonstrate the need for expansion.
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Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Mission and Purpose—Meets: The program has a mission statement and links it with the College’s.

Productivity—Does Not Meet: There is only cursory analysis of the EMP data. The program notes that the increase of Full Time Equivalent Students has resulted in a drop in WSCH/FTEF over the last four years. Part of this is the limited number of students that can attend each lab course. The program makes no mention of its target efficiency and number of sections, nor is there mention of the FTEF increase over the same period, nor the rapid increase in degrees awarded. The program doesn’t mention whether its current trajectory is satisfactory nor what its plans are. Similarly, the rapid spike in degrees awarded is completely neglected. The data looks good for the program and it is strange that they do not take the opportunity to drill down on what contributed to their successes.

Relevance and Currency—Meets: All courses are current, with two up for review later this year. The program asserts that the catalog is accurate and is working with the Curriculum Coordinator to ensure that it remains so.

Challenges, Trends, Strengths—Meets: The program re-iterates that they have pared the lab classes from the 150AB and 200/201 classes, which they imply is not ideal. They do not specifically discuss why they made the change in detail. They also assert that they need additional lab space, as well as increasing their lab tech to full time and an additional FT faculty. They still do not give any attention to the steady (and high) success and retention numbers, nor the other strengths apparent in the EMP data.

While projections for the local area are modest, the program does note that California in general promises good prospects for Physics and Astronomy majors, as well as Engineers. They also note the increased emphasis on STEM nationally, though they do not game out what this means (i.e. will this result in the increase of available resources and funding for the program?). The program also evinces concern that the lack of student services funding will result in a decrease in enrollment, though they do not describe any plans should this bear out.

Efficacy Team Recommendations to Address Does Not Meets (if applicable):

- Provide more explanation of the program’s productivity goals, and account for the program’s successes as well as its challenges. What numbers do the program feel are ideal and how does it plan to get there?

VI: Questions Related to Strategic Initiative: Provide Exceptional Facilities

Goal: SBVC will support the construction and maintenance of safe, efficient, and functional facilities and infrastructure to meet the needs of students, employees, and the community.

SBVC Strategic Initiatives: [Strategic Directions + Goals](#)

	Does Not Meet	Meets	Exceeds
Facilities	The program <u>does not provide an evaluation</u> that addresses the sustainability of the physical environment for its programs.	Program <u>provides an evaluation</u> of the physical environment for its programs and <u>presents evidence</u> to support the evaluation.	In addition to the meets criteria, the program has <u>developed a plan</u> for obtaining or utilizing additional facilities for program growth.

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:
Facilities—Meets: This is a detailed description of the classrooms and equipment, which it asserts are in good condition. The specialized planetarium equipment is serviced as needed, except for the star projector, which is serviced every four years. It would be helpful to know what the expected life span of the planetarium technology is, as the document mentions that it is older in style.

The document also mentions in several places that the lab classrooms are being updated, and are in need of new equipment. This is in addition the need for an additional lab classroom. Much of the rest of this section is concerned with equipment.

Efficacy Team Recommendations to Address Does Not Meets (if applicable):

VII: Previous Does Not Meet Categories

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:
No Previous DNM

Efficacy Team Recommendations to Address Does Not Meets (if applicable): N/A