

PHYSC 012

Cover

Overview

Program Review Year**Title** PHYSC 012**Year of Last Comprehensive Review** Fall 2017**Year of Last Mini Update, if applicable****Originator** Batalha, Celso**Area Dean** Dr. Antoinette Herrera**Division**

Math, Sci. & Engineering

Department

Physical Science

Subject

- PHYSC - Physical Science

Is this a review for a degree/certificate or all the courses in the subject?

All Courses

Courses

- PHYSC 012 - Earth Science - Active

Co-Contributors

*Co-Contributor must be chosen before proposal is launched

- Estrada, Henry
- Fakhruddin, Fahmida
- Herrera, Antoinette
- Masuda, Michael

Overview

Evergreen Valley College guides all students to pathways that reach their educational and career goals through equity-centered, innovative academic programs and support services. By creating a learning environment where everyone feels welcomed and supported, we are committed to a culture of inquiry, growth, and respect that creates an equitable society in which all can participate and prosper.

1.Student-Centered: We provide access to quality and efficient programs and services to ensure student success.

- Access
- Curriculum and programs
- Services

2. Community Engagement: We will transform the college image and enhance partnerships with community, business and educational institutions.

Areas of focus are:

- Increase visibility
- Develop strategic partnerships
- Building campus community

3.Organizational Transformation: We create a trusting environment where everyone is valued and empowered.

Areas of focus are:

- Communication
- Employee development
- Transparent Infrastructure

- **1. Provide a brief summary of your program. Please include a brief history and discuss any factors that been important to the program's development.**

This Physical Sciences Program Review is making its historical debut this year, at least at EVC. Up to 2012, the Physical Science program review included areas generally associated with Physical Sciences: Chemistry, Physics, Astronomy, and Earth Sciences. In 2018, Chemistry divorced from the group and created its program review. Physics gathered the leftovers into a program named "Physics," assimilating Astronomy and a single course called Earth Sciences, or PHYSC 012. Although currently ignored by CCCC DataMart, the new split had the advantage of focusing on programs attending two different student populations: STEM (Physics and Chemistry) and GE (Astronomy and Earth Sciences).

It came to us as a big surprise the decision of the Program Review overseeing committee to make Physical Sciences an orphan child from Astronomy given its GE characteristics, especially given that Astronomy is one of the subjects covered in Earth Sciences, along with Geology, Atmosphere, and Hydrosphere, the latest only in its physical aspect. So, be it. Henceforth, we will refer the Physical Science Program to the dealings of a single course, Earth Sciences or PHYSC 012, which was canceled in spring 2023 due to low enrollment. After this brief historical background, we will claim that this move might set in motion the elements of a new STEM program at EVC.

Around the 2012 Program Review, we were led to associate our courses with C-ID# to facilitate the transfer. We went on to expand the PHYSC 012 course from its 2h/w to 3h/w lecture contact hours as an attempt to map this course as the *Earth Sciences with a Lab course, C-ID GEOL 121* and applied for CID. Our long-term goal was to eventually add a few geology courses, survey the job market, and create an AS-T in Geology. At about the same time, we were planning to move from the Acacia

building to the MS3 building, expecting to receive extra funds to purchase lab equipment to equip an AS-T program in Geology. Unfortunately, the reviewers returned our C-ID proposal asking for substantial modifications to the course structure, especially improving lab content in Atmosphere and Hydrosphere. As we were focusing on the move to the new MS3 building and quite busy, we postponed the implementation of the new labs until after the move was completed. It was considered that extra funds from the move could be funneled to the purchase of new equipment, sensors, computers, etc, helping the launching of an AS-T program in Geology.

Earth Sciences has an impressive geology laboratory with a rich collection of rocks, rock-cutting, and rock-polishing machines, diligently gathered by a former Instructional Lab Technician, Georgiana Rudge, in association with community volunteering support and work. However, it lacks hands-on content to support the other areas, except for the well-equipped Astronomy.

Before the move from the Acacia Building to the Math and Science building, we were told it would be exclusively a Math and Science building like in other community colleges. As such, the new space would allow us to expand our - now orphan - Earth Sciences courses to an AS-T program in Geology incorporating a couple of other geology courses and attending STEM students rather than GE students. An AS-T in Geology requires Calculus 1 and two physics courses. The committee of faculty and classified members selecting the construction and architectural companies was formed solely by Math, Science, and Engineering members. Without much warning, Social Sciences, which should have been given a space of its own, ended up moving with Math and Sciences to the same building, and MS became the MS³ building or the Math, Science & Social Sciences building, a joking way of playing with Einstein's famous equation, MC^2 . We love SSHAPE and its members, and we appreciate the integration and cross-pollination of ideas and goals between these two divisions the merger has facilitated. But Earth Sciences ended up losing a lab space in the new building. To my knowledge, the same happened to one of the Chemistry labs. We were told by the leading administrators at that time that the MS³ building would expand eastward and the new building for Social Sciences would come alive thanks to a new bond measure. Either way, we would inherit plenty of lab space. By 2018, this hadn't crystallized, if using a common expression from Earth Sciences. We formalized an appeal to the Academic Senate, which issued a resolution on March 20, 2018, closing with the following:

"Resolved, that the Academic Senate of Evergreen Valley College request the conversion of SA201 into a Chemistry Lab, and SA113 into a Physics Lab as soon as possible, before a serious chemical accident occurs on campus."

As an isolated course severed from the former Physical Sciences partners, it did not grow. The course is currently led by an associate faculty member, and the instructional lab technician periodically ensures that labs run smoothly, but the separation has taken this course out of the radar of our leading faculty. This Program Review is giving us an opportunity to revisit the history of this course, and maybe guide us to reconnect with the original goals of making the MS³ building and expanding it to an AS-T in Geology, if the market is favorable.

- **2. Please provide an update on the program's progress in achieving the goals (3 years) set during the last comprehensive program review.**

We successfully changed the number of lecture hours from 3h/week to 2h/week, getting state approval.

- **3. Please state and recent accomplishments for your program and show how it contribute to the College's mission and success.**

PHYSC 012 is a science with a lab course attending GE non-science major students looking for a science with lab to fulfill their GE requirements.

- **5. Please describe where you would like your program to be three years from now (program goals) and how these support the college mission, strategic initiatives and student success.**

We want PHYSC 012 course expanded back to a course with 3h/ week lectures in the MS3 building, not in Acacia. We would attempt it, maybe, in a hybrid format introducing flexible schedule for our students.

We want to have complete a study on the available market for geologists as a means to study the viability of an AS-T program in gelogy.

Program Set Standards (Summary Tab)

Overall, EVC's Institution Set Standard for success rate is 72%, and the aspirational goal for student success is 75%.

Success Rate (completion with "C" or better)	Program	EVC	Program Set Standard (established during last comprehensive PR)	Program Success Goal (new)
F'15-F'21 average		72.00%		

Courses with no Degree or Certification

PHYSC 012 - Earth Science

Modify Course

Created: 08/27/2016

Originator: Celso Batalha

Program Success Rate 76.30

Program Set Standard: It is recommended that programs identify a success standard. This standard should reflect the baseline success rate.

Program Set Standard 68.67

Recommendation: 90% of the 6 year average success rate could be your program standard (average x 0.9).

Program Success Goal: It is recommended that programs identify a success goal. This goal should reflect the success rate to which your program aspires.

Program Success Goal 80.00

- **Is your program success rate higher or lower than the campus?**

Higher

- **If your success rate is higher than the campus, how are you helping students succeed in and outside the classroom? If your program success rate is lower, what are some strategies your program is implementing to improve?**

We have a well-equipped Geology lab that is used extensively to the detriment of the other areas covered in this course. We interpret our success rate as directly related to the hands-on approach introduced to our course thanks to geology. It lacks the other areas covered by the course. We need to incorporate equipment and lab modules capable of leading students to a deeper exploration of areas such as the Earth's Hydrosphere and Atmosphere, so crucial nowadays to grasp the entire reach of climate change. In summary, maybe the reported data, albeit exceeding the college average, does not reflect our goal for students. We can deliver a much better course if the lab setting is held closer to the rest of the STEM departments, and equipment and sensors can be purchased to improve the learning areas of Hydrosphere and Atmosphere.

- **Is the current program success rate higher than the program set standard?**

Yes

- **How close is the program to meeting the program success goal?**

It is about 4 points off.

- **Are these measures (program set standard and program success goal) still current/accurate? If not, please describe here and reset the standards.**

They are accurate since it is the first time we are launching this comprehensive program review. We might be able to establish a better comparison framework when submitting a future comprehensive program review.

Success Rates: Measures by IPEDs Race/Ethnicity

- **American Indian: 102 - 78.380%**
Program Average Total Enrolled
 1.000
Program Success Rate
 100.000
- **Asian: 9380 - 79.320%**
Program Average Total Enrolled
 8.000
Program Success Rate
 77.610
- **Black or African American: 464 - 61.430%**
Program Average Total Enrolled
 1.000
Program Success Rate
 75.000
- **Hawaiian/Pacific Islander: 95 - 65.790%**

Program Average Total Enrolled

0.000

Program Success Rate

0.000

- **Latinx: 9005 - 64.730%**

Program Average Total Enrolled

8.000

Program Success Rate

72.120

- **Two or More Races: 614 - 70.030%**

Program Average Total Enrolled

2.000

Program Success Rate

72.220

- **Unknown: 1655 - 72.640%**

Program Average Total Enrolled

2.000

Program Success Rate

69.050

- **White: 1256 - 73.480%**

Program Average Total Enrolled

2.000

Program Success Rate

95.000

Success Rates: Measures by Gender

- **Female: 12340 - 73.970%**

Program Average Total Enrolled

7.000

Program Success Rate

74.270

- **Male: 10154 - 69.610%**

Program Average Total Enrolled

14.000

Program Success Rate

75.970

- **No Value Entered: 77 - 72.590%**

Program Average Total Enrolled

0.000

Program Success Rate

0.000

Success Rates: Measures by Age

- **17 & Below: 736 - 86.260%**

Program Average Total Enrolled

1.000

Program Success Rate

100.000

- **18-24: 15285 - 69.350%**

Program Average Total Enrolled

16.000

Program Success Rate

74.670

- **25-39: 4470 - 75.390%**

Program Average Total Enrolled

3.000

Program Success Rate

83.890

- **40 & Over: 2065 - 78.860%**

Program Average Total Enrolled

2.000

Program Success Rate

100.000

- **Unknown: 16 - 71.080%**

Program Average Total Enrolled

0.000

Program Success Rate

0.000

- **a. With respect to disaggregated success rates, list any equity gaps that are identified and discuss interventions your program will implement to address these equity gaps? Please include a timeline of implementation and reassessment.**

We do not have significant statistics to discuss ethnicities other than Asians and Latinx. However, this and the Astronomy program serve a student population that closely matches EVCs. We can discuss equity gaps in STEM when analyzing the Physics Program Review. There, we see a sharp decline in Latinx following the traditional STEM routes such as Computer Science, Physics, Mathematics, and Engineering. Our program, though, takes Latinx to higher ground in student success than the EVC average, including the Astronomy program, which is a non-science major type of GE course with a

lab. Maybe the environment has a saying for this success, given that students are restricted to a class setting smaller than the Astronomy, doing hands-on work even during lectures, as they take advantage of our rich geology lab.

- **b. With respect to disaggregated success rates (ethnicity / race, gender and age), discuss student performance in reaching your program set standard for student success as well as reaching the program success goal.**

We do not have significant data to address ethnicity other than Latinx and Asians, but, we see a slight decline in student success among Asians when compared with the EVC average, a trend opposite to that found among Latinx.

Program Awards - If Applicable

If the classes in your program lead to a degree or certificate, please visit the DataMart and indicate how many degrees/certificates were awarded in your program:

http://datamart.cccco.edu/Outcomes/Program_Awards.aspx
(http://datamart.cccco.edu/Outcomes/Program_Awards.aspx)

You will need to select drop down menus and then “select program type by major of study” (for example, select Legal for paralegal studies).

Then at the bottom of the report, select the box “program type- four digits TOP”, then update report to get program specific information.

Degree Type

Student Enrollment Types

Student Enrollment Type: Day or Evening Student

- **Day: 4639 - 50.900%**
Program Average Headcount
13.000
Program Percentage of Total
61.900
- **Day & Evening: 2929 - 32.100%**
Program Average Headcount
8.000
Program Percentage of Total
38.100
- **Evening: 1022 - 11.200%**
Program Average Headcount
0.000

Program Percentage of Total

0.000

- **Unknown: 530 - 5.800%**

Program Average Headcount

0.000

Program Percentage of Total

0.000

Student Enrollment Type: Academic Load

- **Full Time: 2259 - 24.800%**

Program Average Headcount

8.000

Program Percentage of Total

38.100

- **Half Time or less than half time: 6084 - 66.700%**

Program Average Headcount

11.000

Program Percentage of Total

52.400

- **a. Discuss any changes in program enrollment types (day vs evening, full-time vs part-time) since your last program review?**

This is the first comprehensive Program Review for the course, and it lacks a framework of comparisons as of now.

- **b. Discuss how do your program enrollments (Pct of total) compare to EVC?**

Earth Science is a course delivered in the afternoon from 12:20 PM to 3:30 PM or after and it is here divided into "Day" and "Day & Evening", both with different figures, which is hard to understand given that it should represent a single section. But taken together, most of our students are full-timers and exceeding EVC average for the time slot.

- **c. Based on the data, would you recommend any changes?**

We would not recommend changes in time slots. We recommend moving to a lab room closer to the other STEM departments.

Student Demographics - Headcount

Student Demographic: Gender

- **Female: 5008 - 54.950%**
Program Headcount
7.000
Program Percentage of Total
33.330
- **Male: 4075 - 44.640%**
Program Headcount
14.000
Program Percentage of Total
66.670
- **No Value Entered: 37 - 0.410%**
Program Headcount
0.000
Program Percentage of Total
0.000

Student Demographic: Age

- **17 & Below: 486 - 5.310%**
Program Headcount
1.000
Program Percentage of Total
4.170
- **18-24: 5493 - 60.210%**
Program Headcount
16.000
Program Percentage of Total
72.730
- **25-39: 2168 - 23.800%**
Program Headcount
3.000
Program Percentage of Total
13.640
- **40 & Over: 966 - 10.600%**
Program Headcount
2.000
Program Percentage of Total
9.090
- **Unknown: 8 - 0.090%**
Program Headcount

0.000

Program Percentage of Total

0.000

Student Demographic: Race/Ethnicity (IPEDs Classification)

- **American Indian: 40 - 0.430%**
Program Headcount
1.000
Program Percentage of Total
4.170
- **Asian: 3689 - 40.480%**
Program Headcount
8.000
Program Percentage of Total
33.330
- **Black or African American: 208 - 2.290%**
Program Headcount
1.000
Program Percentage of Total
4.170
- **Hawaiian/Pacific Islander: 36 - 0.400%**
Program Headcount
8.000
Program Percentage of Total
33.330
- **Latinx: 3636 - 39.850%**
Program Headcount
2.000
Program Percentage of Total
8.330
- **Two or More Races: 248 - 2.730%**
Program Headcount
2.000
Program Percentage of Total
8.330
- **Unknown: 690 - 7.520%**
Program Headcount
2.000
Program Percentage of Total

8.330

- **White: 573 - 6.300%**

Program Headcount

1.000

Program Percentage of Total

4.170

- **a. Based on the program total headcount and percent change year to year, discuss if your program growing or declining. If so, what do you attribute these changes in enrollment to and what changes will the program implement to address them?**

The program seemed stable until during/after the pandemic, when the program witnessed a sharp enrollment decline, more dramatically felt in spring 2023 when, for the first time in at least 20 years, the section was canceled due to low enrollment. Therefore, we recommend expanding the program and not making it a standing-alone class without purpose. We recommend finalizing the promised move to the MS3 building and finalizing a study expanding the program to an AS-T in Geology.

- **b. Discuss any gaps have you identified in your program. Discuss how your program enrollment is similar or different from the campus. Discuss which gender, age, and/or ethnic group are proportionally smaller than campus make up.**

We do not have enough statistics to gauge the differences between Latinx and Asians. However, the data show that the program attracts more non-science Latinx who need a science lab to complete their requirements. If expanding to an AS-T program for science majors is ineffective, maybe we should bring more hands-on show-and-tell to the classroom in the subject areas of Earth's Hydrosphere and Atmosphere, which will require extra funds.

- **c. Discuss what interventions the program can implement to address any gaps in enrollment.**

We should immediately purchase more equipment in the areas we lack lab materials and move the entire lab to the MS3 building.

Institutional Effectiveness (6.5 year average, see Summary Tab)

EVC Capacity: 61.70% EVC Productivity: 14.43

Program Capacity

65.18%

Program Productivity

10.84

Is your capacity rate higher or lower then the campus?

About 3 point higher

Is your productivity goal higher or lower than the campus?

About 3 points lower

If the program capacity and/or productivity is lower than the campus, please provide rationale:

Productivity indicates three points less when compared with the equivalent at EVC. We interpret this as a characteristic of a STEM course with a lab. Physics sections require a set limit on the number of students in a laboratory environment for safety reasons, so labs limit the lecture cap. When courses are competitive, like astronomy, we can add several lecture sections and reduced labs. Earth Sciences has traditionally filled one section alone per term, and so the low productivity.

Curriculum

Related Assessments

PHYSC 012- Created: 03/01/2023 New Section Level SLO Assessment Report Originator: Celso Batalha (/Form/Module/Index/3328)

PHYSc 012- Created: 08/22/2022 New Section Level SLO Assessment Report Originator: Celso Batalha (/Form/Module/Index/2745)

- **1. Identify and updates to curriculum since the last comprehensive program review, including and new programs and indicate the 6-year timeline for scheduled course outline revision. For CTE, the time line is 2 year.**

PHYSC 012 was expanded from a 2h lecture 3h lab to a 3h lecture 3h lab at the time of the last program review (together with physics and astronomy). We applied for a C-ID# in Geology and thought about expanding the standing-alone course to an AS-T program. Unfortunately, given the lack of lab materials in Earth's hydrosphere and atmosphere, we did not receive the C-ID. After the pandemic, we returned to a course with 2h lectures and 3h labs. If the course is moved to the MS3 building, we will study the viability of expanding this course to a program in geology.

- **2. Identify all the courses offered in the program and describe how these courses remain relevant in the discipline. For courses your program has not offered in the past two years, please discuss a plan on how to deal with these courses (if your program is not going to deactivate these courses, please explain why).**

PHYSC 012 - Earth Sciences: Important as a science course with lab for non-science majors.

- **3. If you have a degree or certificate, please include a diagram of your program's guided pathways program map. (A program map indicates courses suggested for each semester, across two years, upon completion a student would qualify for a degree/certificate).**
- **4. Identify and describe innovative strategies or pedagogy your department/program developed/offered to maximize student learning and success. How did they impact student learning and success?**

We are adopting a lab manual that incorporates lecture content, helping students to have a hands-on approach even during lecture hours.

- **5. Discuss plans for future curricular development and/or program degrees & certificates included) modification.**

We propose a study to expand this program by adding a few more courses that would enable an AS-T program in Geology. This requires proximity between the section and students with the other STEM departments. It is crucial to finalize the move of Earth Sciences to the MS3 building.

- **6. Describe how your program is articulated with High School Districts, and/or other four year institutions. (Include articulation agreements, CID, ADTs...)**

PHYSC 012 is fully articulated with the UC and CSU systems.

- **7. If external accreditation or certification is required, please state the certifying agency and status of the program.**

Student Learning Outcome and Assessment

Related Assessments

PHYSC 012- Created: 03/01/2023 New Section Level SLO Assessment Report Originator: Celso Batalha (/Form/Module/Index/3328)

PHYSc 012- Created: 08/22/2022 New Section Level SLO Assessment Report Originator: Celso Batalha (/Form/Module/Index/2745)

Student Learning Outcomes

PHYSC 012 - Earth Science - Apply the scientific method to formulate solutions to real world situations, using critical thinking and logical reasoning (Active)

PHYSC 012 - Earth Science - Apply the scientific method to formulate solutions to real world situations, using critical thinking and logical reasoning (Active)

PHYSC 012 - Earth Science - Apply the scientific method to formulate solutions to real world situations, using critical thinking and logical reasoning (Draft)

PHYSC 012 - Earth Science - Describe different pathways within the rock cycle (Draft)

PHYSC 012 - Earth Science - Describe different pathways within the rock cycle (Active)

PHYSC 012 - Earth Science - Describe different pathways within the rock cycle (Active)

PHYSC 012 - Earth Science - Explain main aspects of the Plate Tectonics theory, indicating geological processes associated with plate boundaries (Active)

PHYSC 012 - Earth Science - Explain main aspects of the Plate Tectonics theory, indicating geological processes associated with plate boundaries (Active)

PHYSC 012 - Earth Science - Explain main aspects of the Plate Tectonics theory, indicating geological processes associated with plate boundaries (Draft)

PHYSC 012 - Earth Science - Explain the differences between weather and climate, using scientific data indicative of changes in the climate and weather systems (Draft)

PHYSC 012 - Earth Science - Explain the differences between weather and climate, using scientific data indicative of changes in the climate and weather systems (Active)

PHYSC 012 - Earth Science - Explain the differences between weather and climate, using scientific data indicative of changes in the climate and weather systems (Active)

PHYSC 012 - Earth Science - Use scientific language and mathematical tools to express physical quantities, increment rates, and extrapolations (Active)

PHYSC 012 - Earth Science - Use scientific language and mathematical tools to express physical quantities, increment rates, and extrapolations (Active)

PHYSC 012 - Earth Science - Use scientific language and mathematical tools to express physical quantities, increment rates, and extrapolations (Draft)

PHYSC 012 - Earth Science - Describe different ways the solar system bodies such as the sun, moon, asteroids and others, impact earth's biosphere and its climate (Draft)

PHYSC 012 - Earth Science - Describe different ways the solar system bodies such as the sun, moon, asteroids and others, impact earth's biosphere and its climate (Active)

PHYSC 012 - Earth Science - Describe different ways the solar system bodies such as the sun, moon, asteroids and others, impact earth's biosphere and its climate (Active)

Program Learning Outcomes

- 1. On the program level, defined as a course of study leading to degree or certificate, list the Program Learning Outcomes (PLOs), and how they relate to the GE/ILOs. Please also indicate how the course SLOs have been mapped to the PLOs. If you are completing this program review as a department or discipline and do not offer any degrees or certificates, please write N/A in this space.

PHYSC 012 is not a course in a program or degree. We would study the viability of expanding it to an AS-T in Geology.

- 2. Since your last program review, summarize SLO assessment activities and results at the course and program level. Please include dialogue regarding SLO Assessment results with division/department/college colleagues and/or GE areas. Provide evidence of the dialogue (i.e. department meeting minutes or division meeting minutes, etc.) List any SLOs or PLOs that have not been assessed in the last two years and provide an explanation of why they have not been assessed. This will be reviewed by the IEC to determine if your Program Review is approved or not.

As reported previously, this course went from one of 2h/3h lectures/lab to a 3h/3h lecture/lab and back to the original 3 unit load. This has placed us in constant change of SLO's languages and their surveys. Our associate faculty is now aware of the procedures used to collect SLOs, but unfortunately, the section was canceled in spring 2023. Emails about this issue have been exchanged with the SLOAC leading person.

- 3. What plans for improvement have been implemented to your courses or program as a result of SLO assessment? Please share one or two success stories about the impacts of SLO assessment on student learning.

Although with declining student enrollment, it is still an attractive science course with a lab for Latinx.

Faculty and Staff

Part D: Faculty and Staff

- 1. List current faculty and staff members in the program, areas of expertise, and describe how their positions contribute to the success of the program.

1. **Jagruiti Vedamati (Ph.D.)** – Dr. Vedamati, an associate faculty, has worked with Celso Batalha updating course outlines and SLOs, overseeing SLO assessments and their analytics, and introducing a variety of teaching modalities to attend to different students' learning skills.
 2. **Duong, Van** - Instructional Laboratory Technician III at Evergreen Valley College (2007 – present) for two departments, Physics (50%) and Chemistry (50%). Her position contributes to program success in the Physics department as follows: She has primary responsibility for ensuring that laboratories run smoothly and safely. Determine, prepare, and provide materials for laboratory experiments and instructor demonstrations. Assist instructors as problems arise. Familiarize new instructors with our facilities and procedures. Oversee lab safety and security. Manage hazardous waste disposal. Help maintain equipment. Support faculties with promoting our programs, including STEM program, Summer Reach, and California Space Grant. Purchase materials, supplies, and equipment; deal closely with the Business Office and the Purchasing departments. She maintains department supply budgets and grant budgets. Join the Hiring committee to hire new staff and faculty. She is also a member of the Classified Senate Committee.
 3. **Francisco, Ricardo** - The Astronomy program has been successful in its student-centered and outreach initiatives due to the dedicated work of Mr. Ricardo Francisco, currently supported by a grant. Rick is an Instructional Laboratory Technician III, Evergreen Valley College (2017-present), and a former volunteer at the Astronomy department (2015-2017). Assist instructors in planning and setting up laboratories and demonstration equipment for the instructors. Perform annual maintenance of the MHO two observatory buildings, Dome, and Roll of Roof mechanical and electrical systems. Assemble instruments on telescopes and service them, clean and sanitize all used optical eyepieces and hand control pads. He also oversees software updates on all astronomical applications controlling the mounts. Host and support MHO/EVC Astronomy outreach program, and schedule monthly public stargazing events via our Meetup website. We have over 1,500+ members. Support the special faculty programs, California Space Grant, Summer Outreach, STEM, and special Astronomical events and talks. He is a member of the MS3 Emergency Floor Captain team and performs an annual inventory of all astronomy equipment, notifying all instructors of new equipment or software.
- **2. In addition to major professional development activities completed by faculty and staff in the past, in particular with regards to students' success, equity, distance education, SLO assessment, guided pathways and/or innovative teaching/learning strategies, are there any additional professional development needs of your department in the future? What are they? Please provide details about a timeline.**

We would like to implement a study for a future AS-T in Geology once the course is moved to the MS3 building.

Budget Planning

Part E: Budget Planning

- **1. With your Dean, review the department Fund 10 budget (operational budget) and discuss the adequacy of the budget in meeting the program's needs.**

Three programs (astronomy, physics, and physical sciences) up to spring 2023 shared one single budget, and we request these departments' budgets to be divided, given that we are currently writing three independent Program Reviews. Given the recent workshops on RAM, I believe this will be the case. Physics provides STEM core courses, Astronomy provides GE courses primarily, and Physical Sciences is just one course. If divided, each department's leading faculty would have an independent budget to better plan their department's future growth.

As of 2022, these are the funds allocated to the three programs:

2021-2022 operation budget for Physics, Astronomy, and Earth Science:

Physics, Astronomy & Earth Science (1902)

<u>GL Account</u>	<u>Description</u>	<u>Budget</u>	
17-21-1902-22500-54100	Supplies Instruction	\$4,315.00	(\$2,873.00 – Physics; \$1,442.00: Astronomy).
10-21-1902-00000-55200	Conference	\$120	(Transferred to Supplies non-instruction and Postage for Physics needs)

- **2. List all external funds, i.e. fund 17, the department/program receives, and describe their primary use.**

10-25-1902-00000-55620	Repair generators to vendor to be repaired)	\$500	(to send broken function
17-25-1902-10506-56411	HERRF Fund	\$3,923.23	(Use all for Physics)

Technology and Equipment

Part F: Technology and Equipment

- **Review the current department technology and equipment needed and assess program adequacy. List and changes to technology or equipment since the last program review. If changes were made please indicate how the change impacted student success.**

The PHYSC 012 course needs adequate laboratory equipment (sensors) for Earth's hydrosphere and atmosphere.

Additional Information

Part G: Additional Information

- **Please provide any other pertinent information about the program that these questions did not give you an opportunity to answer.**

The Physical Science program consists of a course historically developed for future K12 science teachers and our non-science major students looking for a science course with a lab. We propose expanding it to the level of an AS-T in Geology if the career market asks for it, and after we find a home for the labs in MS3.

Future Needs and Resource Allocation Request

Based on the areas noted below, please indicate any unmet needs for the program to maintain or build over the next Comprehensive Review. Please provide rationale on how the request connects back to SLO/PLO assessment, strategic initiatives or student success. If no additional requests are needed in any of the areas, put N/A.

1. Facilities

Ongoing Budget Needs

Immediate move to the MS3 building, requiring the allocation of two rooms, and its adaptation to receive an Earth Science lab with proper storage place and cabinets

One-Time Expenditure

\$150,000 (+)

Request linked to SLO/PLO

SLO # 1, 2, 3, 4, 5, 6

Strategic Initiatives (student centered, organizational transformation, community engagement)

No

Improving student success rates

No

Achievement of program set standard for student success

Yes

2. Equipment/Supplies

Ongoing Budget Needs

750

One-Time Expenditure

\$20,000

Request linked to SLO/PLO

SLO # 1, 2, 3, 4, 5, 6

Strategic Initiatives (student centered, organizational transformation, community engagement)

Yes

Improving student success rates

Yes

Achievement of program set standard for student success

Yes

Total Cost

Facilities

Ongoing Budget Needs: Immediate move to the MS3 building, requiring the allocation of two rooms, and its adaptation to receive an Earth Science lab with proper storage place and cabinets

One-Time Expenditure: \$150,000 (+)

Total Expenses (Staffing and Faculty Requests include Salary and Benefits):

Equipment/Supplies

Ongoing Budget Needs: 750

One-Time Expenditure: \$20,000

Total Expenses (Staffing and Faculty Requests include Salary and Benefits):

Attach Files

Attached File

IEC Reviewers

IEC Mentor

Henry Estrada

IEC Second Reader

Fahmida Fakhruddin