



## Instructional Comprehensive Program Review Template

Directions: Enter your narrative responses after the questions. Upload report(s) that you reference in each narrative.

Submitter: Carina Anttila-Suarez

Submission Date: March 31, 2022

### CONNECTION TO THE COLLEGE

**1.A. DIVISION: STEM**

**PROGRAM NAME:** Earth and Environmental Science

**1.B. YEAR OF REVIEW: 2021**

**1.C. PROGRAM REVIEW TEAM:**

*Carina Anttila-Suarez, Nidhi Patel, Malori Redman with Instructional Designer support Andrea Fuentes*

**1.D. CONNECTIONS TO THE COLLEGE [MISSION/VISION/VALUES](#):**

- i. Describe the program, its purpose, and how it contributes to Skyline College's Mission, "To empower and transform a global community of learners."

The program looks at the world on a global scale from the lithosphere to the atmosphere. Earth and Environmental Science studies prepare students for active citizenship through understanding of the environment and planet around them and how different earth systems interact with each other. The program highlights the impact of humans on the environment and our dependence on natural resources while encouraging civic engagement for our students both professionally and personally in environmental justice, environmental stewardship, and sustainability. The program differs from other programs on campus because it integrates hard science with social issues affecting the world.

- ii. Alignment with the College Values

Place a check next to the Skyline College Values that are integral to your program's operations; for each value checked, provide a concrete example of how the value connects to your programs.

✓ **Social Justice:** We are committed to a comprehensive diversity framework that promotes social justice throughout all policies, procedure, and practices of the College.

In educating students about the processes and issues facing our natural world, we contribute to the mission of the college by ultimately making them more informed and responsible global citizens, helping them to understand issues of environmental justice, and giving them tools to encourage positive change in their communities. For example, in Environmental Science, we examine the effect of lead in drinking water in communities like Flint, Michigan. In GEOL 106, we discuss human impact on climate change and wildfires and how this can be combatted.



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Our Climate Corps initiative exposes newly graduated young professionals to work experience in the sustainability field. Climate Corps Fellows are paid to work 40 hours per week for 10 months with community partners to apply sustainability projects desired by each partner. The fellows gain hands-on work experience and understanding of the issues they will face in their new careers.

✓ **Campus Climate:** We value a campus-wide climate that reflects a 'students first philosophy' with mutual respect between all constituencies and appreciation for diversity. Both instruction and student services are dedicated to providing every student with an avenue to success.

We offer paid fellowships to provide students with avenues to success in environmental science and sustainability via the Energize College program. We also sponsor campus wide events such as the Environmental Racism event from October 2021 led by Pia Wallawalkar.

✓ **Open Access:** We are committed to the availability of quality educational programs and services for every member of our community regardless of level of preparedness, socioeconomic status, gender, gender expression, sexual orientation, cultural, religious, or ethnic background, or disability status. We are committed to providing students with open access to programs and responsive student services both in person and online that enable them to advance steadily toward their goals.

All of the earth and environmental science courses strive to have open access to all students. There are no prerequisites for our 100 level courses. Our faculty complete regular professional development, including Bridget James' completion of the Equity Training Series.

Our faculty also work towards continuous improvement of their teaching practices to serve our students both in-person and online; all of our faculty have completed the Quality Online Teaching and Learning certification offered by CCTL and had a course undergo the POQR process. Malori Redman completed QOTL 2 (advanced online teaching and learning).

✓ **Student Success and Equity:** We value students' success in achieving their goals, on time, and strengthening their voices as they transform their lives through their educational experience. We aim to identify and address equity gaps through evidence-based research to ensure that each student has the opportunity to succeed.

Our courses are taught in an inclusive manner using diverse teaching techniques to promote success by all learners. During the Comprehensive Program Review, we dove into the data to identify any equity gaps. We would like to increase the number of students from African American, Native American, and Pacific Islander groups that take our courses. In addition, we plan to work on marketing to high school students with MCPR and building a successful number of graduates from our program. We also want to connect with our counselors to guide and promote earth and environmental science degrees.

Our Energize College interns are intentionally recruited with a diversity lens; over 85% are people of color. Our Climate Corps Fellows in 2021 were 40% people of color.

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✓ **Academic Excellence:** We value excellence in all aspects of our mission as a comprehensive community college offering preparation for transfer to a baccalaureate institution, workforce and economic development through career technical education programs and certificates, Associate of Arts and Associate of Science degrees, a Baccalaureate Degree, basic skills development, and lifelong learning. We are committed to academic rigor and quality with relevant, recent, and evolving curricula and well-equipped programs that include new and emerging areas of study. We are dedicated to an educational climate that values creativity, innovation and freedom of intellectual exploration, discovery, thought, and exchange of ideas.

Our programs are designed to transfer to four-year colleges (CSU, UC.) We have updated our curriculum lately to stay current with environmental issues. Course updates include information on the progress of climate change, sea level rises, and the need for our society to be more sustainable. We are submitting 2 newly designed courses for Climate Corps fellows who stay for a second year and continue their work as a climate professional.

Courses in this division include hands-on experience through field trips, seminars with expert speakers, along with teaching that is either online or in-person.

✓ **Community Partnership:** We value a deep engagement with a community we serve through collaborating with local school districts, industry, non-profits, government and the arts. Valuing our role as an academic and cultural center, we are dedicated to meeting the needs of the labor market and community.

Through our Climate Corps Fellows Program, we partner with various profit and non-profit community organizations who hire a Climate Corps Fellow for 10 months to implement sustainability projects. We have 100 fellows in the 2021-2022 cohort. In 2019-20, Carla Grandy and Carina Anttila-Suarez worked with a local elementary school to implement sustainability and environmental projects and studies through the various grades. We assigned 2 students per year as Energize College fellows under direction of the school principal and involved all the teachers. Hopefully, this can be revived post-pandemic.

☐ **Participatory Governance:** We value just, fair, inclusive, and well understood, transparent governance processes based upon open and honest communication.

✓ **Sustainability:** We value an institutional culture that is committed to environmental sustainability and justice. We are committed to the tenet of sustainability, "To meet present needs without compromising the ability of future generations to meet their needs."

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In Environmental Science 100, students look at the impact of the waste stream produced by their peers on campus. In the climate course, Climate Corps fellows have looked at the amount of water generated by fog on campus. As a coastal college, understanding the ocean is a pivotal part of student life and oceanography seeks to teach students about complexities of the aquatic environment and the impact of acidification and pollution on our planet. Environmental justice is fully embraced in environmental science.

Landon Smith, our Sustainability Coordinator, has recently launched a paperless campus initiative. The paperless project aims to transition our campus to a digital model for academic and administrative tasks. We are leveraging the experience of certain programs and departments on campus who have already transitioned to identify best practices and design effective resources/guides/information to make the transition easier for other programs. Our goal is to work with 4-6 campus groups/departments or programs each semester to train and support them in the transition.

### PROGRAM PERSONNEL

i. Provide the current FTE of each category of personnel:

- FT Faculty FTE: .2 Carina Anttila Suarez
- Adjunct Faculty FTE: 2.34 (5 part-time faculty)
- Classified Professionals FTE: 0
- Manager/ Director FTE: 0
- Dean FTE (if applicable): .05

ii. Describe any changes in staffing since the last CPR, and how the change(s) have impacted the program.

☐ Not Applicable

New: We have now institutionalized a climate corps fellow every year to serve as a sustainability coordinator. The goal is to become a regular classified position. We “lost” a full-time professor when Carla Grandy became Dean, and that position has not been replaced.

iii. Are there any unmet needs in the program pertaining to program personnel (e.g. staffing, schedule limitations, turnover)? If yes, please specify.

☐ Not Applicable

Yes, we need a full time Earth Science professor, and we also need a sustainability coordinator to effectively operate the program. We have several qualified adjunct faculty, but it is a juggling act to provide the options needed for students, especially with wanting to offer

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robust online and blended learning opportunities. The Environmental Science club fell by the wayside with the pandemic, and students are interested in re-engaging with that.

### 1.E. PROFESSIONAL DEVELOPMENT

- i. Summarize key professional development that the program personnel have engaged in since the last CPR to meet
  - the mission of the program,
  - the aim of the college to increase equity.
  - Carla Grandy and Bridget James have completed the *Equity Training Series*.
  - Malori Redman took earth science equity training and QOTL over summer 2020.
  - Malori Redman studied *Humanizing Stem* in 2021 - applied to all classes.
  - Nidhi Patel completed the inclusion training online program in 2020.
  - Carina Anttila-Suarez is working with national parks: Glacier National Park and Point Reyes National park, including conducting harbor seal counts.
  - Carina Anttila-Suarez is completing a course on *Mushrooms of the Pacific Northwest*.
  - The team has presented at AASHE (American Association of Sustainability in Higher Education) meetings for the past 5 years on our sustainability work. We shared our sustainability plan with other colleges as a template.
  - Indonesian Award - We were awarded the most sustainable community college in 2018.

✓ Not Applicable

## CURRENT STATUS

### 2.A.1. STATUS OF PRIOR GOAL – Goal # 1

#### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

Add lab sections for ENVS 101 and GEOG 106 (towards goals from past CPR) (2015).

STATUS: ✓ Completed Discontinued

For ongoing or revised goals, provide responses in [Section 5.B.](#)

#### SUPPORTING NARRATIVE FOR EACH GOALS' STATUS

- Completed – we added a lab section for ENVS 101, which has been running for the past 3 years.
- For Geology 106, the team determined that it was not needed.



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- The labs were needed to allow students to take a science course with a lab component to meet GE requirements; this addition gave students more flexibility and choice.

### IMPLEMENTATION STEP(S)

N/A

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☐ Student Success and Equity
- ☒ Academic Excellence
- ☐ Community Partnership
- ☐ Participatory Governance
- ☐ Sustainability

### 2.B. ACHIEVEMENTS

Describe the program's achievements since the last CPR (beyond what was addressed in 2.A).

Consideration may include, but not limited to:

- Successful and/or innovative programming, initiatives, and plans
- Fruitful collaborations beyond the program
- New or updated curriculum
- Inreach/outreach efforts
- Technology or operational improvements
- Successful use of data to improve student outcomes and equity
- Maintenance of high levels of excellence
- New degrees, certificates, and/or pathways

We now have 24 Skyline fellows that have participated as Climate Corps Fellows working 90 hours per semester on a paid stipend. This is over the past 3 years. The group is highly diverse:

- 15 Female and 8 Male
- 6 Hispanic
- 5 Filipino
- 5 Asian
- 1 Black
- 3 Multiracial



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- 2 White Non-Hispanic
- 1 unknown

We have institutionalized funding for Energize Colleges and added a sustainability coordinator via Climate Corps to manage the students and their projects.

We have recently added the Environmental Science Building, which is a brand-new state of the art facility including an ocean view, large lecture halls to encourage gatherings for meetings and community events, more classroom space for students, and dedicated environmental science and geology labs.

### 2.C. IMPACTS ON PROGRAM

Describe the impacts on your program (positive or negative) by legislation, regulatory changes, accreditation, grantors, community/school partnerships, college-wide initiatives, stakeholders, and/or other factors.

The program has been positively impacted by the new building with space to grow our program and better facilities for our students and the community. The partnerships with the Climate Corps organizations have increased our relationship with the community.

## ACCESS

### 3.A. PROGRAM ENROLLMENT

What enrollment trends do you observe, and what may account for these trends?

These observations are for the period of 2015-2020.

- 52.7% Female vs. 42.1% Male, a slight increase in females which is consistent with overall college enrollment trends.
- Slight increase in Filipino/a/x enrollment: went from 12% in 2015 to 15% in 2020
- Slight decrease in Asian enrollment: down 1 percentage point,
- Black, non-Hispanic enrollment is still somewhat low, 2.4%. Small number of students averaging between 4 and 11 students per semester.
- Breakdown between full-time students and part-time students is about 50:50, which is actually higher than the College overall FT/PT ratio of 40:60.
- 72% of our students are seeking a degree to transfer.
- 68% of our students are between 18 and 28.

We would like to look at ways to attract more Black students, perhaps in partnership with UMOJA-ASTEP to reach high school students or working with MCPR.

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### 3.B. EQUITABLE ACCESS

Provide an analysis of how students, particularly historically disadvantaged students, are able to access the program.

- i. **PROGRAM ACCESS:** How do your program enrollment demographics compare to that of the College as a whole? What differences, if any, are revealed? What program, institutional, and/or external factors may have impacted equitable access, whether positively or adversely?
  - Hispanic students make up 29% of our program, on average; this is consistent with the college as a whole.
  - Our program has a higher percentage of full time students based on course load; it runs about 50:50 while college overall is only about 40% full time.
  - Our program has a much higher percentage of transfer-degree students than the college overall; 72% vs. 55% for college overall.
  - Our program has a small percentage of under 18 students (Middle College) 10% vs 20% for college overall; however, they have excellent course success rates of 93%, perhaps reflecting the importance of environmental issues to this generation.
  - Disturbingly our program has had no graduates since 2016 according to the data from PRIE. Carla Grandy believes we had some geology graduates, but this is not reflected. It also appears that we are not tracking the climate professionals program data.
- ii. **COURSE ACCESS:** Provide analysis of course enrollment trends for all active courses.

In the last 5 years, prior to the pandemic our course enrollments were increasing. Since the pandemic, our enrollments have dropped. Some courses, such as OCEN 100, have held steady. As a division, we aim to continue to maintain the number of students enrolled in OCEN 100 and ENVS 100, while seeking ways such as advertising to bolster the numbers for other courses, such as Geology. We believe the drop in enrollments in Geology and other courses was due to the pandemic.
- iii. What efforts, if any, have been made to increase equitable access to your program (e.g., curricular and pedagogical changes to the courses; when it is offered; modality options – face-to-face, online, hybrid; recommended course sequencing; integration into guided pathways; adoption of OER/ZTC texts, etc.)? If more is needed, consider making it one of your program goals in the Action Plan.

The Environmental Science lecture and lab are now offered as regular online courses. All courses, due to COVID, were offered online from March 2020 through December 2021. For Spring 2022, we have a variety of options for students from face-to-face or online. Bridget James has created an OER course for Geology that is beginning now in 2022. Our division is involved in a PIF-funded faculty group including members of Chemistry, Physics, Business, and library faculty to host events that will be of interest to students of diverse backgrounds. For example, in Spring 2022, the group is holding a joint workshop to discuss the implications of the lead crisis in Flint Michigan.



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### EFFECTIVENESS

#### 4.A. OVERALL AND DISAGGREGATED COURSE SUCCESS RATES

Provide analysis of course success rates overall and disaggregated by student demographics.

- i. How do the course success rates overall compare to the College success rates?  
Course success rates are excellent overall, averaging 85.9%, and 10 full points above the College success rate of 75.3% for the same period.
- ii. What have you learned from reviewing the overall and disaggregated course success data? Choose disaggregations which are most relevant to programming decisions (e.g. ethnicity, gender, age, enrollment status, and/or disaggregations that are unique to your program).  
The Earth and Environmental Science faculty have been doing a successful job at promoting student success. While students have been successfully completing our courses, they seem to have been all general education (GE) students because we have had no graduates in our AS-T program.
- iii. If outcomes reveal inequity, what may be contributing factors at the program, college, and/or district level?  
None found.

#### 4.B. INDIVIDUAL COURSE SUCCESS RATES

Provide analysis of individual course success rates.

Based on our analysis of the individual course SLO results, the courses are solid in success in meeting SLOs, with the most recent Fall 21 data having SLOs met between 83-96% of students assessed. We do not see causes for concern with the SLOs in the earth and environmental science program.

Within the two programs, there were only 2 individual SLOs that were not in the 83-97% success rate. One SLO result was a 75% success rate in ENVS 101, applying the scientific method in the laboratory course. The other lower result was 75% success rate in GEOL 210 that deals with expressing complex concepts in writing/diagrams, critical thinking and problem solving.

See the chart in 4.E. for details.

#### 4.C. INSTITUTIONAL SLO RESULTS

When possible, concurrently assess course SLOs and ISLOs.

Report on the last six years of ISLO results. Indicate if the results met the benchmark or were inconclusive. Additional commentary is optional.

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ISLO	Subcategory	Year Assessed	Method	# of students	Course	Met/Exceeded
Effective Communication	Fulfillment	F 2015	MC Question	33	ENVS 100	88%
Effective Communication	Comprehension	F 2015	MC Question	33	ENVS 100	85%
Effective Communication	Analysis/Audience	F 2015	MC Question	33	ENVS 100	85%
Effective Communication	Organization/Audience	F 2015	MC Question	33	ENVS 100	85%
Citizenship	Commitment via civic engagement	SP 2017	MC Question	15	GEOL 105	86%
Information Literacy	Source, Relevance, Quality, Credibility	F 2016	MC Question	27	GEOL 105	89%
Information Literacy	Use of Info Ethical and Legal	F 2016	MC Question	27	GEOL 105	64%
Effective Communication	Comprehension	F 2015	MC Question	29	GEOL 105	93%
Effective Communication	Analysis/Audience	F 2015	MC Question	29	GEOL 105	72%
Effective Communication	Organization/Audience	F 2015	MC Question	29	GEOL 105	86%

All ISLOs were met or exceeded in the high 80s, with a couple of exceptions. One is effective communication, organization/audience as measured by a multiple choice question in GEOL 105 in 2015. This warrants further examination. It looks like information literacy as far as using information ethically and legally could be improved, as well as effective communication in the analysis/audience aspect.

The team is considering revising the ISLO measurements to more authentic assessment apart from only multiple-choice questions.

Possibly due to the pandemic, the last ISLO measurement was in Spring 2017, 5 years ago.

#### 4.D. COURSE AND PROGRAM SLO RESULTS

Upload the relevant [Improve](#) (formerly *Tracdat*) SLO reports showing the last six years of results that you reference in the narrative.



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Drawing from 4.C. and 4.D., what notable conclusions were drawn from the assessment results? If available, note any differences in assessment results by key disaggregations (e.g. modality, learning communities, etc.). What have been the implications for the program?

i. How well is the program meeting its PSLOs?

For programs that assess PSLOs by “rolling up” course level SLO results,

- Which courses or course level SLOs do students struggle with, and which have “inconclusive” results, if any? Speculate why.
- If course level SLO results were quantified, identify the total number of students whose work met the benchmark, and the total number of students whose work was assessed, and then calculate the total percentage of students whose work met the benchmark.

Not applicable, see below.

ii. Are the PSLOs still relevant to your program? If not, what changes might be made?

We are not assessing PSLOs as according to the PRIE data, there have been no graduates in the past 5 years. This underlying issue needs to be addressed via marketing and outreach efforts. Dean Carla Grandy is following up with PRIE to find out more about this situation.

Drawing from the last six years of course SLO assessment, which courses beyond the ones mentioned in 4.D.i. had results that led to action(s) that were planned or taken?

X Not Applicable

### 4.E. COURSE ENHANCEMENTS

Which course(s) are of concern due to their course success rates, SLO results, and/or other reasons? What efforts, if any, have been made to enhance student learning in those courses (e.g., curricular and pedagogical changes to the courses; course sequencing, including complementary general education courses; adoption of OER/ZTC text; assessment design; collaborations with other areas of campus, etc.)? If more is needed, consider which changes may be submitted to the Curriculum Committee in the Fall, and/or making it one of your program goals in the Action Plan.

We have no major concerns based on the SLO data. In Fall 21, faculty reported for course SLOs success rates from 83 to 96%. Most of the courses had high success rates with the SLOs.

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Course	SLO (short version)	F 21 SLO Success Rates
ENVS 100	1 Understanding scientific method	97%
	2 Applying knowledge	87%
	3 Assess personal/env. health	93%
	4 Active citizenship	89%
ENVS 101	1 Understanding scientific method	75%
	2 Active citizenship	90%
	3 Environmental health	85%
	4 Apply knowledge	95%
OCEN 100	1 Sci. Method as applied to oceanography	84%
	2 Scale of earth, ocean & atmospheric pressures	94%
	3 Human impacts/societal benefits of oceanographic processes + resources	94%
	4 Complex concepts in writing/diagrams, critical thinking and problem solving	86%
	5 Interdisciplinary relationship between ocean processes	94%
OCEN 101	1 Interpret features on maps, charts, satellite images	93%
	2 Plate tectonics	93%
	3 Graph/analyze data	89%
	4 Measure seawater & atmosphere	80%
GEOL 106	1 Earth-sun relationships	82%
	2 Distribution of world climates	86%

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	3 Greenhouse effect	82%
	4 Climate change	96%
GEOL 210	1 Earth systems interactions	90%
	2 Earth processes external + internal	100%
	3 Scale of geologic events	80%
	4 Complex concepts in writing/diagrams, critical thinking and problem solving	75%
	5 Geologic structures	80%

During the pandemic, we did have more course student drops in Fall 21: 9 out of 27 students in OCEN 101 and 9 out of 19 in GEO 210 for example. Students had the opportunity to take a no-pass that didn't affect GPA but showed a pattern of students not completing the courses. This may be a reflection of that portion of students that do not perform well or enjoy fully online courses. This is something that we will be looking at in future semesters.

The Environmental Science lecture and lab are now offered as regular online courses. All courses, due to COVID, were offered online from March 2020 through December 2021. For Spring, we will have a variety of options for students from face-to-face or online. Bridget James is creating an OER course for Geology to begin in 2022. We are also considering offering additional sections of ENVS 100 as a late-starting course in future semesters.

We are interested in adding a class on Climate Change, if possible, for UC CSU transferability. The course would address recent information and threats to our environment, and we believe it would be a popular topic with students. We are considering incorporating guest speakers from other disciplines to round out the course curriculum material.

### 4.F. DEGREES AND CERTIFICATES

☐ Not Applicable

List each of the degrees and certificates separately.

Provide analysis of degrees and certificates attainment, disaggregating by the demographics that are relevant to your program.

- i. What do the data reveal about
  - degree and certificate completion?



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- time to completion?
- equity?

We do not show any degree completion for Earth, Environmental Science or Geology. The Environmental Science and Geology degrees are fairly new and the Dean believes that is the reason for no graduates. The numbers for Natural Science (AS) went from 28 graduates in 2015-16 to 15 in 2019-20 (possibly due to COVID). However, it is concerning that the numbers are declining. It appears that the Climate Professional Certificate data is not being captured by PRIE. The Dean is following up with PRIE.

- ii. What changes do the data suggest are necessary for the program to explore?

We should explore the reason for the drop offs and look to attract more students post-COVID. We could explore with MCPR marketing these valuable degree options and promoting them to prospective students. At SFSU three departments are merging, which could be a good intro for Skyline students to complete the AS-T for entrance into SFSU.

### 4.G. LABOR MARKET CONNECTION

☐ Not Applicable

If appropriate for your program, given labor market data related to your program, discuss current labor trends and how your program is addressing them. How are you incorporating assessment information, recommendations from any advisory boards, and other external indicators into program planning? Report out on the following source(s) that are relevant to your program. Attach data.

- i. Labor Market and Trends (e.g. Centers of Excellence, Burning Glass)

Environmental Engineer positions are at low demand with only 1322 positions projected, but this is an increase of 8.1%. The average salary is \$80,500 with over 90% requiring bachelor's degrees.

Environmental Planner positions are at moderate demand with 1719 positions projected, but this is an increase of 11.8%. The average salary is \$66,000 with over 90% requiring bachelor's degrees.

Environmental Technician positions are at average demand with 1394 positions projected, but this is an increase of 11%. 66% of posted jobs just require a high school diploma, but about 11% are with an Associate's degree. The average salary is \$36,000.

- ii. Performance for CTE Programs (Launchboard)

n/a

- iii. Advisory boards

n/a



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### 4.H. STUDENT FEEDBACK

Briefly describe how and when feedback was solicited from students, whether qualitative or quantitative, and what the results reveal.

The data was recently provided but had a low response rate. For example, for OCEN courses, 1171 were sent out 1171 and got 73 responses, ENV5 were sent 1211 with 58 responses, and for GEO 1237, 43 responses were submitted.

Overall, there was a great deal of positive feedback on engaging instructors, field trips, connection with important environmental issues, and real life connections.

The majority of students indicated that they make environmentally responsible choices based on the classes, which is an important aspect of these studies in earth and environmental science classes.

There were lots of positive but redacted comments about professors; it would be nice to have unredacted information to share the kudos with them.

Some suggestions were to offer more field trips (loved those) and a complaint about an expensive textbook for one ENV5 class section.

### Reasons for Choosing Course

- Geology: #1 reason was Skyline Counselors, closely followed by current/former students and other reasons.
- Environmental Science 100: the top reasons were 42% major requirements and 40% personal interest.
- ENV5 101: Personal interest was the #1 reason with over 41% of students, and 48% chose for major requirements.
- Counselor and internet were tied at 35% each, followed by current or former students at 22%.
- Oceanography: the #1 reason was 55% from counselors, with 19% from current/former students, 25% from an internet search.

### Content Meeting Needs - Geology

- GEOLOGY: 97% felt content met their needs. 100% said they made environmentally responsible decisions based on the studies.
- 92% felt the course met their needs (agree or strongly agree).
- 96% agreed that they took environmental considerations into account in personal decisions as a result of the course.

### Content Meeting Needs - Environmental Science

- 98% said the content met their needs

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- 95% agreed that they took environmental considerations into account in personal decisions as a result of the course.

### 4.I. CURRICULUM

Programs are required to update all curriculum and secure approval by the Curriculum Committee. Please check the boxes to indicate that the following tasks have been completed.

✓ Secured approval of updated courses by the Curriculum Committee

Updated Improve with new or changed SLOs, and requested from PRIE the addition of new courses in order to input SLOs (NO

✓ Not Applicable

✓ Submitted a current assessment calendar with all active courses to the Office of Planning, Research, and Institutional Effectiveness

☐ Reviewed, updated (as needed), and submitted degree and certificate maps to the Curriculum Committee (see below)

	Use the Scientific Method and apply it to the development of scientific thought.	Critically evaluate scientific information in the media and from scientific sources to assess both its credibility and significance and impact on society and the environment.	Analyze the interdisciplinary nature of environmental science.	Document and communicate scientific findings effectively.
GEOL 100 (AS-T) - new				
GEOL 120				
GEOL 105				
GEOL 220				
BIOL 215: Organismal Biology: Core I	I	I		P
BIOL 230: Introduction to	P	P		P



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Cell Biology: Core II				
CHEM 210: General Chemistry I	I	I	I	I
OR				
BIOL 230: Introduction to Cell Biology: Core II	P	P		P
CHEM 210: General Chemistry I	I	I	I	I
CHEM 220: General Chemistry II	P	P	I	P
ENVS 100 & 101: Introduction to Environmental Science & Lab	I	I	I	I
GEOL 210: General Geology	P	P	I	I
OR				
GEOG 100 & 101: Physical Geography & Lab	I	I	I	I
GEOL 106: WEATHER AND CLIMATE	I	I	I	I
OCEN 100 & 101: Oceanography and Lab	I	I	I	I
MATH 200: Elementary Probability & Statistics				I
MATH 251: Calculus with Analytic Geometry I				
OR				
MATH 241: Applied Calculus I				
ECON 102: Principles of				

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Microeconomics				
PHYS 210: General Physics I	I	I		I
PHYS 220: General Physics II	P	P		P
OR				
PHYS 250: Physics with Calculus I	I	I		I
PHYS 260: Physics with Calculus II	P	P		P
Intersegmental General Education Transfer Curriculum for STEM (IGETC for STEM)				
	removed GEOL 100 and 101			
<a href="http://catalog.skylinecollege.edu/current/programs/environmental-science-for-transfer-as-t.php">Source: http://catalog.skylinecollege.edu/current/programs/environmental-science-for-transfer-as-t.php</a>				
<i>Note: The PSLOs are different on the Earth Sciences website: <a href="https://skylinecollege.edu/earthsciences/programlearningoutcomes.php">https://skylinecollege.edu/earthsciences/programlearningoutcomes.php</a></i>				

### ACTION PLAN

Using key findings based on the analysis from this CPR cycle, develop a multi-year plan designed to improve program effectiveness and promote student learning and achievement.

Identify 1 – 5 goals total: ongoing, revised, and/or new goals.\*

#### 5.A. CHALLENGES AND CONCERNS

Considering the results of this year's CPR assessment, identify challenges, concerns, and areas in which further action is needed. Reference relevant sections of the CPR that provide further insight.

Challenges:

1. Full time faculty very much needed
2. Request for full time sustainability coordinator



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3. Concern re: no graduates
4. Increase recruiting for students from certain groups

### 5.B.1. ONGOING AND/OR REVISED GOAL – Goal # 1

#### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

**2019:** Hire a new full-time faculty member for Earth Science to teach classes and serve on committees.

#### STATUS

☒ Ongoing      Revised for this cycle

#### SUPPORTING NARRATIVE FOR EACH GOALS' STATUS

Ongoing

- a) Roughly how much of the goal has been implemented – 25/50/75%?
- b) What has been accomplished thus far?
- c) What has been the impact of resources that were provided? ☒ Not Applicable
- d) What are challenges not already documented? ☒ Not Applicable

- Revised

- a) Explain how and why the goal has been revised: implementation plan? timelines? Measures of success?

This goal has not been started so far. The measure of success will be to hire and onboard the new faculty member.

#### REMAINING IMPLEMENTATION STEP(S) AND TIMELINE

The Dean will request via the FTEF process.

#### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☒ Student Success and Equity
- ☒ Academic Excellence
- ☐ Community Partnership
- ☒ Participatory Governance
- ☒ Sustainability

#### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS



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✓ Not Applicable

Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

### 5.B.2. ONGOING AND/OR REVISED GOAL(S)

#### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

Increase teaching on campus and living labs. This involves facilities, including wiring data boards for new environmental science Building

#### STATUS

☐ Ongoing      ☐ Revised for this cycle

#### SUPPORTING NARRATIVE FOR EACH GOALS' STATUS

- Ongoing
  - a) Roughly how much of the goal has been implemented – 25/50/75%?
  - b) What has been accomplished thus far?
  - c) What has been the impact of resources that were provided? ☐ Not Applicable
  - d) What are challenges not already documented? ☐ Not Applicable
- Revised
  - a) Explain how and why the goal has been revised: implementation plan?  
**timelines? Measures of success?**

A campus living lab allows students to directly understand how their learning environment impacts the use of energy, resources, and generates pollution. A well-devised living lab will allow courses to compare individual buildings on campus for energy consumption compared to the age of the building and its LEED designation.

#### REMAINING IMPLEMENTATION STEP(S) AND TIMELINE

The District Sustainability Manager, Joe Fullerton must provide access to the data he gathers, either in an online format or with installation of display boards that have been requested in new buildings such as the ENVS Building 12. The Sustainability Coordinator is to follow up on this request and share data with faculty.

#### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate



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- ☐ Open Access
- ☐ Student Success and Equity
- ☐ Academic Excellence
- ☐ Community Partnership
- ☐ Participatory Governance
- ☒ Sustainability

### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS

- ☐ Not Applicable

Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

#### 5.C.1. NEW GOAL – Goal # 1

What additional goal(s) are needed to address key findings in 5.A.?

- Describe a new goal's measure of success, if not explicitly reference in the goal itself.
- Briefly explain the need for the goal under "Rationale".
- List the related implemented step(s) to achieve a new goal, which can include intended changes, professional development, and/or further inquiry.
- Develop a timeline for achieving the new goal.

\*Goals are the outcome you intend to achieve, and implementation step(s) are the actions that help you achieve a goal.

#### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

Create a full-time sustainability coordinator (classified position). The measure of success will be gaining approval for that position, then hiring that person. The part time was initiated in 2021-22 with a Climate Corps fellow serving each year in that role.

#### RATIONALE

We currently have a part time sustainability coordinator, who is leading the paperless campus initiative and working with the Climate Corps Fellows. They are also involved in environmental projects for students and the campus.



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### IMPLEMENTATION STEP(S) AND TIMELINE

- Develop classified position description
- Share with Human Resources and Union
- Request approval for position
- Post position (Spring 2022)
- Interview (Spring 2022)
- Onboarding/Training (Fall 2022)

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☐ Student Success and Equity
- ☐ Academic Excellence
- ☒ Community Partnership
- ☐ Participatory Governance
- ☒ Sustainability

### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS

- ☐ Not Applicable

Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

We will need additional funding to move from a part-time role to a full-time position.

#### 5.C.2. NEW GOAL – Goal # 2

What additional goal(s) are needed to address key findings in 5.A.?

Increase graduates of AS-T in Environmental Science and Geology. This is a new goal beginning 2022. Since we have no graduates, and there is a need in the community and the world, we would like to have some graduates especially with the opportunity to work with SFSU programs.

- Describe a new goal's measure of success, if not explicitly referenced in the goal itself.

The measure of success is to increase by a total of 5 graduates per year beginning in

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2023-24 between Environmental Science and Geology, and continue increasing that number by 5 every year for the subsequent 5 years.

- Briefly explain the need for the goal under “Rationale”. - see above
- List the related implemented step(s) to achieve a new goal, which can include intended changes, professional development, and/or further inquiry.

This involves working with marketing and reaching out to SFSU to ensure our program prepares students for their 4-year degree programs. We also need to develop some marketing campaigns to promote awareness of the degree options for entering students and possibly dual enrollment. We will need to seek the help of our counselors, transfer center staff, and marketing staff.

- Develop a timeline for achieving the new goal.

See above

\*Goals are the outcome you intend to achieve, and implementation step(s) are the actions that help you achieve a goal.

### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

Increase opportunities for student environmental and sustainability projects, beginning in 2022 with the return to campus. It will be measured by student involvement in environmental projects and organizations. For example, Increase civic engagement projects in the community, such as beach clean ups.

### RATIONALE

Students in the program and across campus want to get involved in the environmental disasters we are facing as global citizens. With the expertise of the faculty and Climate Corps fellows, there are opportunities for both hands-on learning and fostering a civic mindset as part of the People’s College.

### IMPLEMENTATION STEP(S) AND TIMELINE

By hiring an additional full time faculty, that person could work closely with Carina Anttila-Suarez and MCPR to develop and promote the degree program.

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

☒ Social Justice

☐ Campus Climate

☐ Open Access



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✓ Student Success and Equity

☐ Academic Excellence

☐ Community Partnership

☐ Participatory Governance

✓ Sustainability

### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS

✓ Not Applicable

Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

### 5.C.3. NEW GOAL – Goal # 3

What additional goal(s) are needed to address key findings in 5.A.?

- Describe a new goal's measure of success, if not explicitly reference in the goal itself.
- Briefly explain the need for the goal under "Rationale".
- List the related implemented step(s) to achieve a new goal, which can include intended changes, professional development, and/or further inquiry.
- Develop a timeline for achieving the new goal.

\*Goals are the outcome you intend to achieve, and implementation step(s) are the actions that help you achieve a goal.

### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

Hire an additional full time faculty member, for 2022-23 to teach courses and serve on committees, as well as promoting the degree and sustainability projects. The measure of success will be bringing on an additional faculty member in Earth Sciences.

### RATIONALE

There is only 1 full-time environmental/earth science faculty member, Carina Anttilla-Suarez, who teaches both Environmental Science and Biology (actually, she is only .6 for Environmental Studies) with 3 different academic programs. The need for community involvement, sustainability, and student engagement is great and cannot be met with only adjuncts. Even completing the CPR process is challenging with a single faculty member. Students need more time and attention to succeed in the program.

### IMPLEMENTATION STEP(S) AND TIMELINE

Apply to FTEF and present in Fall 2022 to add an additional FTE. If approved, initiate job





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posting, hiring committee, interviews, and recommendations to the President.

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☒ Student Success and Equity
- ☒ Academic Excellence
- ☐ Community Partnership
- ☐ Participatory Governance
- ☐ Sustainability

### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS

x Not Applicable

Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

#### 5.C.4. NEW GOAL – Goal # 4

What additional goal(s) are needed to address key findings in 5.A.?

- Describe a new goal's measure of success, if not explicitly referenced in the goal itself.
- Briefly explain the need for the goal under "Rationale".
- List the related implemented step(s) to achieve a new goal, which can include intended changes, professional development, and/or further inquiry.
- Develop a timeline for achieving the new goal.

\*Goals are the outcome you intend to achieve, and implementation step(s) are the actions that help you achieve a goal.

### GOAL, YEAR INITIATED, AND MEASURE OF SUCCESS IF NOT REFERENCED IN GOAL

2022: Increase teaching about campus and living labs. This involves facilities, including wiring data boards for the new Environmental Science Building.

A campus living lab allows students to directly understand how their learning environment impacts the use of energy, resources, and generates pollution. A well-devised living lab will allow courses to compare individual buildings on campus for energy consumption compared to the age of the building and its LEED designation.

### REMAINING IMPLEMENTATION STEP(S) AND TIMELINE

The District Sustainability Manager, Joe Fullerton must provide access to the data he



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gathers, either in an online format or with installation of display boards that have been requested in new buildings such as the ENVS Building 12. The Sustainability Coordinator is to follow up on this request and share data with faculty.

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☐ Student Success and Equity
- ☐ Academic Excellence
- ☐ Community Partnership
- ☐ Participatory Governance
- ☒ Sustainability

### RATIONALE

### IMPLEMENTATION STEP(S) AND TIMELINE

### GOAL ALIGNMENT WITH COLLEGE VALUE(S)

- ☐ Social Justice
- ☐ Campus Climate
- ☐ Open Access
- ☐ Student Success and Equity
- ☐ Academic Excellence
- ☐ Community Partnership
- ☐ Participatory Governance
- ☐ Sustainability

### RESOURCE REQUEST RATIONALES FOR ONGOING & REVISED GOALS

- ☐ Not Applicable



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Which additional resources are needed (e.g., services from or partnerships with other areas of campus, instructional equipment, facilities, personnel, etc.)? How will they help to support the goal?

### APPROVAL AND SIGNATURE

This document has been reviewed and approved by: [Click or tap here to enter text.](#) on [Click or tap to enter a date.](#)

Carla Grandy

Carla Grandy

Carla Grandy (May 23, 2022 16:50 PDT)

05/23/2022

I am working with faculty to identify courses that need to be deleted (of which there are several) and then we will work to bring remaining courses through curriculum committee at the beginning of F22 semester.

Danni Redding Lapuz

A handwritten signature in black ink, appearing to read "Danni", followed by a horizontal line.

06/15/2022