

2018 Environmental/Earth Sciences Annual Program Plan

ENVS Environmental/Earth Sciences

I.A. Program Profile: Purpose

Describe the program(s) to be reviewed. What is the purpose of the program and how does it contribute to the mission of Skyline College?

Narrative

The purpose of the Earth and Environmental Science Program at Skyline College is to educate students about the Earth, Earth resources, the environment and the role that they play in changing the environment. We offer 5 GE classes in GEOL, 2 in OCEN, and 1 in ENVS. In addition to our GE offerings, we offer several COOP, CTE, and certificate courses ranging from high school engagement to post-secondary training for Climate Protection Professionals.

The goals of the Earth and Environmental Science Program are to:

- 1) Educate students about Earth processes and the environment around them;
- 2) Build an understanding of the interdisciplinary nature of Earth and Environmental sciences, which includes a comprehension of the relationships between Earth processes and the distribution of natural resource;
- 3) Highlight the impact of humans on the environment and the dependency of humans on natural resources; and
- 4) Engage students in environmental stewardship by exposing them to real-world environmental issues and by providing opportunities for them to become engaged on campus and in the community through faculty sustainability efforts.

This contributes to the mission of Skyline College by empowering students to make decisions that will benefit themselves, their communities, and the Earth through educating them on the role that they play in sustaining the Earth and environment. We also offer opportunities for students to become engaged with sustainability related projects on campus and in the community further empowering them to become change agents. A further goal of the program is to expose the students to career opportunities in Earth and Environmental Science.

| Associated Objectives |
|---|
|  525-Lab supplies for Oceanography course. |
|  527-Laptops for Earth Science Courses |

I.B. Program Planning Team

Annual program planning is intended to be a collaborative process which promotes dialogue and reflection. Please identify all individuals who contributed to or shaped the narrative. Include names and the title or role of each person.

Narrative

Carla Grandy, Earth Science Faculty

Carina Anttila-Suarez, Environmental Science Faculty

II.A. Analysis: Progress on Prior Program Objectives (Goals) and Activities

Describe the progress made on previously established program objectives (goals) including identification of achievements or areas in which further effort is needed. New programs which have not yet established CPR/APP objectives should discuss progress on program implementation or activities.

Narrative

Goal 1: Teach students about Earth processes and the environment around them.

Achievements:

- ENVS 100 explored waste disposal in San Bruno and remediation of issues caused by pollution, mismanagement, and CalTrans at Mountain Lake in San Francisco.
- GEOL 105 students explore real-world climate and atmosphere data to understand how Earth's climate is changing as a result of human intervention. GEOL 105 students also complete "Lifestyle Projects" to identify changes that can be implemented in their lives to lessen their environmental impacts.
- Offered GEOL/GEOG 106 – Weather and Climate – was offered fully online in Fall 2017, which is our first fully online Lecture + Lab course.
- Development of new course in Greywater Principles and Practices (GEOL 680SP) gives students an understanding of Earth systems, offers hands-on technical skills in greywater installation and management, and provides a connection to the local community.
- Expansion of COOP 670 to offer the School of Environmental Leadership program to high school students exposes students to Earth and Environmental Science and creates a high school to college pathway in Environmental Studies and Sustainability.

Further Effort Needed:

- Increased outreach/coordination with counseling faculty to increase enrollment in new courses.

Goal 2: Build an understanding of the interdisciplinary nature of Earth and Environmental sciences, which includes a comprehension of the relationships between Earth processes and the distribution of natural resource.

Achievements:

- Teamed GEOL and ENVS students to tour campus facilities to evaluate energy efficiency measures on campus and conduct a campus energy audit in an effort to help students relate Earth and Environmental Science

to the environment around them as well as exposing them to career opportunities and opportunities on campus.

Further Effort Needed:

- Resurrect ESTM programs, with a new full-time hire, to allow connection to careers in Earth and Environmental Science Technologies to promote many overlaps between our departments and our engagement benefits both programs.
- Create permanent Sustainability Coordinator position on campus to be able to plan and facilitate student engagement with sustainability and “campus as a living lab” components for classes, not just in Earth and ENVS, but across the campus.

Goal 3: Highlight the impact of humans on the environment and the dependency of humans on natural resources.

Achievements:

- Earth and Environmental Science students are participating in the Skyline College Day of Action along with Pacifica Beach Coalition
- Campus speaker to address the Climate Crisis spoke to 100+ GEOL, PHIL, ENGL, and SOCI students on social and environmental impacts of climate change.
- Engagement of students through sustainability related work on campus, including Sustainability Ambassadors Network and the Climate Action Plan, allows students to engage with their environment and exposes them to ways that they can positively impact the environment.
- Study of local climate using fog catcher and weather station engages students with both the science and technologies used in Earth Science.
- Social Justice and Sustainability Community of Practice has offered events and opportunities for students to engage in volunteer and other activities relating to these topics.
- Further Effort Needed:
- Formalization of service learning within Earth and Environmental classes to engage students with meaningful experience within the community as well as strengthen community relationships.
- Re-establish Student Sustainability Summit to give students the opportunity to identify sustainability projects on campus that they would like to see implemented along with funding to realize them.

Associated Objectives

-  [524-Field equipment for Earth and Environmental Science Classes](#)
-  [525-Lab supplies for Oceanography course.](#)
-  [527-Laptops for Earth Science Courses](#)
-  [526-Purchase dissecting microscopes](#)

II.B. Analysis: Program Environment

Describe any recent external or internal changes impacting the program or which are expected to impact the program in the next year. Please include when the specified changes occurred or are expected to occur.

Narrative

With the Comprehensive College Redesign that is currently underway at Skyline College, the Earth Science Department will have the opportunity to grow and increase enrollment to be a major component of a GE thematic pathway in Sustainability. We also have several high impact practices (HIPs) such as: internships, capstones, field experiences, and service learning that may also serve as models or be important components of the newly redesigned curricular offerings of the college.

In Fall, 2017 we had a 1-unit ENVS 101 lab course approved by curriculum committee and in Spring, 2018 we had a AS-T in Environmental Science approved and submitted to the state. With the upcoming new building, we are hoping to expand our course offerings, majors, and overall enrollment in Earth and Environmental Sciences.

Beginning in Fall 2016, the Climate Corps Bay Area and thus our Climate Protection Professional Certificate program began to include students from the AmeriCorp Program. This addition broadened the student body involved and expanded the number of students able to participate in the certificate and in the program in general.

In Fall 2016, the introduction of Energize Colleges on the Skyline College Campus has allowed us to engage more students in sustainability related projects through funded internships allowing us to have more of an impact on campus and in the community. We have now provided internships to 21 Skyline College Students through this program.

In Spring 2017, we offered Greywater Principles and Practices for the first time to give students training and education in a applied aspect of Earth and Environmental Science and expose them to a growing industry in the Bay Area.

Throughout the 2017-18 year, our sustainability related work has grown substantially on campus through these various initiatives, which provides both a meaningful experience and tool for engagement for students, but also makes it challenging to facilitate all of the activities that are occurring. In combination with the Social Justice and Sustainability Community of Practice we have been able to offer several service learning and campus engagement opportunities for Earth and Environmental Science students.

Associated Objectives [527-Laptops for Earth Science Courses](#)

II.C. Analysis: Student Learning Outcomes (SLOs and PSLOs)

(1) Instructional Programs Only: Describe what was learned from the assessment of course SLOs for the current and past year.

(2) Student Service Programs Only: If PSLOs are being assessed this year (3-year cycle), describe what was learned. If no assessment was done because this is an off-cycle year, please state that this item is not applicable.

Narrative**ENVS 492 was assessed in Spring 2017.**

Results: 90% of students conducted cost-benefit analyses of proposed climate change initiatives, designed project work plans, identified career and employment options in their field, and produced portfolios to highlight their work.

What we learned: Students within the Climate Protection Professional program are engaged and gaining valuable professional experience through placements at local government, educational, and private organizations engaged in sustainability-related work. We have also learned that the students in this program are very committed and engaged in the program indicating the program itself is highly successful.

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III.A. Reflection: Considering Key Findings

Consider the previous analysis of progress achieved, program environment, and course-level SLOs or PSLOs (if applicable). What are the key findings and/or conclusions drawn? Discuss how what was learned can be used to improve the program's effectiveness.

Narrative

This program is the process of growth and development. Through early assessment we have learned that students are most thoroughly engaged in the coursework that offers a meaningful engagement in their environment and community through campus as a living lab activities, field trips, and opportunities to engage in environmental monitoring.

Key Findings:

- Students are most engaged when they are exposed to real-world problems and scenarios through field explorations, accessing data from scientific organizations, and sustainability programs and opportunities on campus;
- OCEN 100 and ENV5 100 continue to have the highest enrollment of all of the courses within the program and through better communication with Counseling faculty and staff, we hope to increase interest in the many other courses offered in Earth and Environmental Science;

Improving Program's Effectiveness:

- Creating a permanent Sustainability Coordinator position on campus would allow us to create more and implement more fully the engagement pieces that are most meaningful to students;
- Incorporating service learning opportunities in Earth and ENV5 would allow students to engage in the community and put their classroom learning to work which would be mutually beneficial to both the students and the community;
- Incorporating more distance education offerings (ENV5 100 is currently in the process of being developed for online offering for F18) to provide open access to more students;
- Resurrecting the ESTM and other professional programs to introduce students to careers in Earth and Environmental Sciences would potentially improve enrollment and engage students in a more meaningful way.

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III.B. Reflection: ISLOs

If your program participated in assessment of ISLOs this year:

- (1) What are the findings and/or conclusions drawn?
- (2) Does the program intend to make any changes or investigate further based on the findings? If so, briefly describe what the program intends to do.

Narrative

Citizenship ISLO, Spring 2017 in GEOL 105 (note: results were not yet available at the time of the last APP)

Findings: The Citizenship ISLO was assessed in GEOL 105 using a Lifestyle Project. A Lifestyle Project is a culminating experience in that class that ask students what changes they can make to their lifestyle to reduce their impact on the environment. Throughout the semester students learn about water and water pollution, climate and climate change, and energy and energy conservation. For the last month of the class, they are asked to pick three areas of their life that they could change to positively impact those environmental problems that they have learned about. (For example: students propose to eat less meat or take the bus once per week, etc.) The project has a reflective nature in that it asks students to journal their experience and reflect at the end on how easy or difficult it was to implement change and whether they will continue with the changes. Of the students who submitted the project, all were successful in completing it and reflecting on their experience.

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IV.A. Strategy for Program Enhancement: Continuation/Modification

Indicate whether the program is continuing implementation of the last CPR strategy or revising the strategy. Please describe the modifications if revisions are intended.

Note: Any new strategies should be linked to Institutional Goals through creation of objectives in the next section. If the program has not yet participated in comprehensive program review, an annual or multi-year strategy can be defined in this item.

Narrative

The program continues to implement the most recent CPR strategy through regular assessment of SLO and ISLO data to better understand student mastery and from that improve the courses and the way that we offer the material.

Additionally, we are revising the strategy to expand the engagement of our students with the campus and community through regular projects and opportunities in sustainability related efforts. To be able to achieve this we are requesting that a Sustainability Coordinator position be institutionalized so that these opportunities can be expanded thereby impacting more students and further enhancing community engagement.

An additional strategy is to engage a wider range of students through expanding our distance education offerings to include ENVS 100 as well as the GEOL/GEOG 106 lecture and lab, both of which are now offered online.

Associated Objectives

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-  [526-Purchase dissecting microscopes](#)

IV.B. Strategy for Program Enhancement: Action Plan and Resource Requests

Based on the most recent CPR and any desired modifications, develop an annual action plan with related resource requests. No narrative response will be entered in this section, but the objectives you create will be printed automatically in the APP report under this item.

(1) To begin, click on PLANNING at the top of the page, then CREATE A NEW OBJECTIVE. To view previously created objectives, click PLANNING at the top of the page, then VIEW MY OBJECTIVE.

(2) IMPORTANT! Make sure to associate each objective to this standard in the APP. Need help? Contact the PRIE Office for further instructions. Institutional Goals.

Narrative

| Associated Objectives |
|--|
| <ul style="list-style-type: none">  524-Field equipment for Earth and Environmental Science Classes  525-Lab supplies for Oceanography course.  527-Laptops for Earth Science Courses  526-Purchase dissecting microscopes  151-Create Sustainability Coordinator Staff Position [Objective from 2016-2017] |
| <ul style="list-style-type: none">  Budget and Objectives of Environmental/Earth Sciences Department |

Objectives of Environmental/Earth Sciences Department

Planning Year: 2018-2019

Planning Year: 2018-2019

| Unit Code | Planning Unit | Unit Manager |
|------------|------------------------------|---------------|
| 2414ENVS00 | Environmental/Earth Sciences | Grandy, Carla |

Objective Status: New/In Progress

| | |
|-----|---|
| 151 | Create Sustainability Coordinator Staff Position |
| | We hope to establish a permanent Sustainability Coordinator position on campus. This person would be able to work on implementation of both Sustainability Plan as well as Climate Action Plan goals and objectives, which would ultimately provide a cost savings to Skyline College and the SMCCCD. The Sustainability Coordinator would also help to organize Sustainability related events on campus to more deeply engage students with the interdisciplinary nature of the work we do. This would highlight and increase enrollment in several of our under enrolled programs like ESTM and Geology. The Sustainability Coordinator would also be able to identify and help to develop a GE Pathway in Sustainability and identify Service Learning opportunities in Sustainability related fields, increasing student engagement and community connection. |
| 524 | Field equipment for Earth and Environmental Science Classes |
| | To be able to expand our field experiences and offer additional skills based field opportunities for students in Earth and Environmental science classes. |
| 525 | Lab supplies for Oceanography course. |
| | Oceanography has the highest enrollment of all of the courses in Earth and Environmental Science, but is also a class where students struggle to understand the complex physical processes. New lab equipment would allow us to better engage the students in hands-on activities that would make the material more understandable to these mostly non-science major, GE students. Supplies needed include: Wave Tank Salinometers Hydrometers |
| 526 | Purchase dissecting microscopes |
| | Analysis of micro plastic pollution samples for Earth and Environmental students in lecture and lab classes. |
| 527 | Laptops for Earth Science Courses |
| | Laptops are used by Earth Science students to look at real world data relating to various aspect of Earth and Environmental Science as well as to do mapping and geologic exploration. We currently share with Biology and Chemistry but because Earth Science uses them on a daily basis, we need our own set. Additionally, as we move to the new building we will not be able to easily share the Chemistry/Biology laptops. |