



Instructional Programs

2017-2018 Self-Study

Three-Year Program Review Template

[Environmental Sciences]

[Natural Sciences Division]

Statement of Collaboration

The program faculty listed below collaborated in an open and forthright dialogue to prepare this Self Study. Statements included herein accurately reflect the conclusions and opinions by consensus of the program faculty involved in the self-study.

Participants in the Self-Study

Tom Morris

Royden Hobbs

Authorization

After the document is complete, it must be signed by the Principal Author, the Department Coordinator, and the Dean prior to submission to the Program Review Committee.

_____	_____	_____	_____
Printed name of Principal Author	Signature	Title	Date
_____	_____	_____	_____
Printed name of Department Coordinator	Signature	Title	Date
_____	_____	_____	_____
Printed name of Dean	Signature	Title	Date

1.0 Mission and Goals

The College's Mission, Vision, Core Values and Goals drive all college activities. The Program Review committee would like to understand the connection of your program to the College's Mission, Vision, Core Values and Goals. Summarize how your program supports each area.

Mission:

We prepare students to be successful learners.

The Environmental Sciences department courses and faculty prepare students to be successful learners by:

- Offering courses with interesting and useful subject matter
- Modeling the processes used to resolve compelling mysteries about nature
- Engaging students in multiple modes of contact and inquiry, including reading, lecture, video, online and field experiences.

Vision:

Fullerton College will create a community that promotes inquiry and intellectual curiosity, personal growth and a life-long appreciation for the power of learning.

Through the use of empiricism and rational analysis, the department's courses and faculty encourage students to develop a more objective, informed, realistic and sensible world view – the hopeful outcome of which is to increase each student's curiosity about the natural world, and to bolster their determination to understand it.

Core Values:

We respect and value the diversity of our entire community.

Courses in the Environmental Sciences department are expressions of a Natural Philosophy, the core of which is composed of the principles of empiricism and reason. Both of these principles form the foundation of democratic societies, human rights, and the rule of law. This perspective engenders respect for all people, regardless of their origins or their personal situations.

We value tradition and innovation.

Science is just that: a tradition that seeks innovation. The faculty of the Environmental Sciences department respects the traditional foundations of human society as a basis for stability, richness and hope. Without such a platform, innovation could not be sustained. Still, as scientists, we are explorers, and seek not to preserve traditions as static elements, but to extend them with new findings.

We support the involvement of all in the decision-making process.

As a philosophy, science is skeptical of individuals who claim ultimate authority. To scientists in the Environmental Sciences department, the ultimate authority is objective reality. Therefore, we promote the notion that sound policies must be based on a reasonable assessment of the objective facts first, then considered in terms of benefits and impacts to all affected stakeholders.

We expect everyone to continue growing and learning.

The professors in the Environmental Sciences department advocate continuous learning for themselves and for their students. We model this behavior in important ways. For example, one of our professors researches, writes and regularly updates their own textbook for one of the main courses in the program. The other professor frequently travels to environmentally significant locales (such as Africa and Alaska) in order to personally witness the beauty and degradation of impacted natural environments. Both regularly create and update new field activities for our field-oriented courses.

We believe in the power of the individual and the strength of the group.

Power of the individual. The history of science is filled with examples of the power of independent thinking not artificially constrained by conventional wisdom. Eratosthenes modeled a spherical world, Copernicus placed it in orbit around the sun, Darwin envisioned natural changes of its inhabitants, and Muir popularized their value.

Strength of the group for a better world. Environmental science advocates the strength of the group by engaging in the political process collectively to counteract threats to the environment, and by extension, threats to the individual.

We expect everyone to display behavior in accordance with personal integrity and high ethical standards.

The professors in the Environmental Sciences department are dedicated professionals who are committed to fairly advancing the intellectual interests of the academy. The practice of science is utterly dependent upon integrity and ethics. We attempt to model personal integrity and ethical standards everyday as we interact with students. We promote learning in a safe and objective manner. We model this behavior by preparing thorough syllabi and sticking to the policies specified therein. In addition, we strictly comply with our contractual obligations such that students receive the educational experience they expect. Finally, we recognize that all interactions with students may be friendly but should not be personal.

We accept our responsibility for the betterment of the world around us.

As environmental science instructors, we are personally motivated to do what we can to help protect and conserve the planetary surface environment in an effort to secure a prosperous future. Our courses seek to expose students to the beauty and complexity of their natural world so that they may understand, appreciate and value it. It is our small contribution to promote environmental awareness as an essential prerequisite for a better future.

We value and promote the wellbeing of our campus community.

The professors of the Environmental Sciences department recognize that we do not operate in isolation from the rest of the campus. Instead, we see ourselves as beneficiaries of other campus components, such as Admissions and Records, Counseling, Library, Academic Computing Technology and the various levels of administration. Also, we recognize that students majoring many other academic departments on campus are drawn to courses in our department as a means of satisfying their transfer and degree requirements. As a result, it is on our best interest to advocate for, support and represent the campus community as a whole.

College Goals:

Goal 1: Fullerton College will promote student success.

The Environmental Sciences department promotes student success by:

- Offering courses that fulfill General Education transfer and degree requirements. For example, ENVS 105 F Environmental Biology and ENVS 105 LF Environmental Biology Lab are popular courses that help students meet Gen. Ed. requirements in life sciences.
- Offering a variety of interesting courses for transfer credit and personal enrichment. For example, courses like ENVS 142 F Geology and Marine Biology of the Channel Islands and ENVS 141 F Desert Natural History not only provide useful transfer credit, but also build confidence in students by exposing them to challenging and interesting field environments that might otherwise deter them.

Goal 2: Fullerton College will reduce the achievement gap.

The department attempts to reduce the achievement gap by:

- Preparing our own course materials (such as text readings, study guides, lab activities, and classroom presentations) to present content and activities in a direct and not overly-complicated manner.
- Assigning videos with closed caption services, and with accompanying transcripts.
- Regularly working with students during office hours to aid them in preparing for exams and for completing assignments.
- Regularly supporting students with special needs by coordinating with Disability Support Services.
- Using graphical presentations in the classroom to illustrate concepts.
- Making course content available online.

Goal 3: Fullerton College will strengthen connections with the community.

The department offers several short-term courses intended to attract students of all ages and invite them into the field. For example, ENVS 140 F Birds of Southern California is accessible by anyone in the community who has an interest in local birds. And ENVS 145 F Marine Vertebrate Ecology of the Channel Islands gives community members a seagoing adventure led by experts in marine biology.

In addition, our many field courses take students to local sites of natural interest. These experiences nurture stronger attachments to community and, by extension, to Fullerton College.

2.0 Program Data & Trends Analysis

2.1 Key Performance Indicators (KPI)

For each KPI listed below, analyze and report your findings and describe what they mean.
(Attach 5-year longitudinal data from Office of Institutional Research and Planning (OIRP) to Appendix.)

KPI	Findings
Enrollment	<p>Following a peak enrollment of 1397 students in the year 2014, enrollments generally have declined to a low value of 1160 students in the year 2017. That's a 17% decline since 2014.</p> <p>Some of this decline is a consequence of the department not offering any sections of two regularly-offered courses starting in spring 2016.</p> <p>The courses are: two sections of ENVS 105LF Environmental Biology Lab – historically offered during summer session. The last summer sections were offered summer 2015.</p> <p>One section of ENVS 141 F Desert Natural History – historically offered in spring. The last section of this course was offered spring 2015.</p>
Total FTES	<p>Total FTES also follows the same trend as Total Enrollment. Peaked in the year 2014 at 127.3. Declined to 107.2 in the year 2017. That's a 16% decline since 2014. Some of this decline is a consequence of the department not offering any sections of two regularly-offered courses starting in spring 2016.</p> <p>The courses are: two sections of ENVS 105LF Environmental Biology Lab – historically offered during summer session. The last summer sections were offered summer 2015.</p> <p>One section of ENVS 141 F Desert Natural History – historically offered in spring. The last section of this course was offered spring 2015.</p>
Sections	<p>The number of sections remained fairly steady (34 – 36) for the years 2013 through 2016, but dropped to 31 in 2017.</p> <p>Some of this decline is a consequence of the department not offering any sections of two regularly-offered courses starting in spring 2016.</p> <p>The courses are: two sections of ENVS 105LF Environmental Biology Lab – historically offered during summer session. The last summer sections were offered summer 2015.</p> <p>One section of ENVS 141 F Desert Natural History – historically offered in spring. The last section of this course was offered spring 2015.</p>
FTEF	FTEF values tend to mirror section trends. Started at 5.4 in 2013;

	ranged from 5.7 to 5.9 in 2014 through 2016; then dropped to 5.3 in 2017. We have no comments on these value fluctuations.
Fill Rate	Course fill rates have been exceptionally high through the five-year study span. Ranging from 95.6% to 98.5% for the years, 2013 through 2016. Then declined to 93.6% in 2017. We have no explanation as to what has caused fill rates to decline recently.
WSCH/FTEF	WSCH/FTEF ranged from 634.1 to 657.7 in the years 2013 through 2016. Then declined to 608.8 in 2017. We have no explanation as to what has caused this ratio to decline recently.
Retention	Retention percentages have fluctuated from the low to mid 80's throughout the five-year span. Peaking at 87.6% in 2016, with a low of 83.0% in 2015.
Success	Success percentages indicate an upward trend during the five-year study span. 64.9% in 2013 and 69.8% in 2017, with a peak success rate of 70.7% in 2016.

2.2 Peer Institution Comparison

Program Awards

The results for queries for “program awards” from the Chancellor’s DataMart are displayed in the below table.

California Community Colleges Chancellor's Office
Program Awards Summary Report

	Annual 2012-2013	Annual 2013-2014	Annual 2014-2015	Annual 2015-2016	Annual 2016-2017
Fullerton Total			3	3	2
Associate of Arts (A.A.) degree			3	3	2
LA Pierce Total					1
Associate of Arts (A.A.) degree					1
MiraCosta Total	20	4	6		
Associate of Science (A.S.) degree	20	4	5		
Associate of Arts (A.A.) degree			1		

Report Run Date As Of : 1/23/2018

Note: Other colleges with Environmental Sciences degrees queried but which were not included in this report (presumably because there were no degrees awarded) included:

Chaffey College
Modesto College

Analysis of Program Awards comparison

Except for the spike in degrees awarded by Mira Costa College in 2012-2013 year, comparison programs at peer colleges generally award very few degrees. Some years, no degrees are awarded. For example, four of the peer colleges with Environmental Science programs awarded no degrees during the study time span, and were not included in the report summary shown above.

Beginning in the fall of 2017, the Environmental Sciences program initiated a revised state-approved Associate of Science curriculum. This degree program focuses on naturalist ecology. Its coursework requirements emphasize field ecology. The program is better defined as compared to programs from previous years. As a result, we predict an increase in degrees in the coming years.

Retention/Success

NOTE: use local data to compare with datamart queries

Queries using the Chancellor’s Data Mart for retention and success yielded no data for the Fullerton College Environmental Sciences program (TOPS code 0301.00). As a result, it is not possible to compare our program with others using the Chancellor’s data. Instead, we used local data of Key Performance indicators. The following table displays the results.

	Spring 2014	Spring 2015	Spring 2016	Spring 2017	Spring 2014	Spring 2015	Spring 2016	Spring 2017
	Retention Rate	Retention Rate	Retention Rate	Retention Rate	Success Rate	Success Rate	Success Rate	Success Rate
Chaffey College	87.76 %	84.62 %	88.89 %	93.33 %	53.06 %	42.31 %	55.56 %	71.11 %
Fullerton College (Annual)	85.50 %	83.00 %	87.60 %	83.20 %	67.90 %	65.50 %	70.70 %	69.80 %
LA Pierce College	87.27 %	89.38 %	82.04 %	89.63 %	63.64 %	64.84 %	57.28 %	65.85 %
MiraCosta College	83.56 %	78.95 %	80.00 %	90.91 %	75.34 %	68.42 %	67.14 %	84.09 %
Reedley College	80.65 %	100.00 %	100.00 %	92.86 %	45.16 %	26.67 %	81.25 %	57.14 %



Based on this comparison of peer institutions, the Environmental Sciences department at Fullerton College has retention rates that are in the middle of the pack, and consistently high success rates.

2.3 Achievement Gap

Indicate achievement gap for each of the groups listed below. (Attach to Appendix the Success and Retention by Ethnicity Data as identified by the Office of Institutional Research and Planning.)

Group	% Retention	% Success
Males	AN13 88.1%, AN14 86.4%, AN15 83.8%, AN16 88.1%, AN17 84.9%	AN13 68%, AN14 68.5%, AN15 66.5%, AN16 70.7%, AN17 72.2%
Females	AN13 82.8%, AN14 84.8%, AN15 82.1%, AN16 87.0%, AN17 81.7%	AN13 61.7%, AN14 67.6%, AN15 64.6%, AN16 70.5%, AN17 68.2%
Asian-American	AN13 78.7%, AN14 85.1%, AN15 83.2%, AN16 86.9%, AN17 88.2%	AN13 63.3%, AN14 67.9%, AN15 64.8%, AN16 72.0%, AN17 78.2%
African-American	AN13 75.9%, AN14 75.5%, AN15 59.4%, AN16 69.2%, AN17 70.0%	AN13 48.3%, AN14 46.9%, AN15 37.5%, AN16 53.8%, AN17 56.7%
Filipino	AN13 89.7%, AN14 84.4%, AN15 95.0%, AN16 87.0%, AN17 72.7%	AN13 69.0%, AN14 75.0%, AN15 80.0%, AN16 78.3%, AN17 50.0%
Hispanic	AN13 84.2%, AN14 86.1%, AN15 82.4%, AN16 86.9%, AN17 80.3%	AN13 60.6%, AN14 67.9%, AN15 61.7%, AN16 68.6%, AN17 66.0%
Native American	AN13 none, AN14 100%, AN15 100%, AN16 100%, AN17 100%	AN13 none, AN14 40.0%, AN15 100%, AN16 0.0%, AN17 100%
Other Non-White	AN13 , AN14 , AN15 , AN16 , AN17	AN13 , AN14 , AN15 , AN16 , AN17
Pacific Islander	AN13 100%, AN14 100%, AN15 87.5%, AN16 83.3%, AN17 100%	AN13 50.0%, AN14 100%, AN15 37.5%, AN16 33.3%, AN17 100%
White	AN13 91.0, AN14 86.5%, AN15 87.6%, AN16 91.5%, AN17 92.6%	AN13 75.0%, AN14 71.9%, AN15 78.1%, AN16 78.6%, AN17 81.8%
Unknown	AN13 91.1%, AN14 79.2%, AN15 75.0%, AN16 88.9%, AN17 76.5%	AN13 64.4%, AN14 56.3%, AN15 61.7%, AN16 59.3%, AN17 58.8%
Range (min-max)	59.4% to 100%	0% to 100%

2.4 Program Effectiveness

Since your previous Program Review Self-Study, what significant changes have occurred that impact the effectiveness of your program?

There have been disruptions in staffing as professors in the program have taken frequent leaves and a long-term adjunct was replaced by a tenured professor new to this discipline. Faculty on leave have travelled to diverse locations to gain first-hand experience related to their subject and the department has benefitted through the development of new course materials and a division seminar. However, the disruption in staffing has impacted the department.

Since the Environmental Sciences department is staffed by two fulltime professors, all sections left unattended by on-leave professors had to be filled by adjunct professors, including lectures and labs. In the fall of 2017, four new adjuncts had to be hired. Because of the specialized nature of our course offerings, an extensive amount of time and effort was required by the remaining single professor in the department to train, guide and evaluate new adjuncts. Although the program benefits from the growth professors experience while on leave and the new materials that are developed, the quality of the program suffers when adjuncts are required to cover courses normally taught by tenured faculty. It normally takes a semester or two for new adjuncts to become sufficiently acquainted with their courses.

2.5 Describe any laws, regulations, trends, policies, procedures or other influences that have an impact on the effectiveness of your program. Please include any other data (internal or external) that may be relevant to student achievement, learning, and trends within your Basic Skills, CTE, or Transfer Education programs.

None.

2.6 Provide any other data that is relevant to your self-study.

None.

3.0 Strengths, Weaknesses, Opportunities, Challenges (SWOC)

Based on your analysis in 2.1 through 2.6, answer the following questions:

3.1 What are the strengths of your program?

Based on the above data, the greatest strengths of the program are the following:

The courses in the Environmental Sciences department provide an attractive and useful alternative to the traditional biology courses (such as BIOL 101), which tend to be more theoretical and abstract. Environmental Sciences courses address biological and ecological concepts in the context of real world environmental settings – which many students find more comprehensible and appealing.

Environmental Sciences courses offer students interesting and engaging field experiences. Students explore local and remote wilderness and discover the sensible connections between abstract principles and natural reality in the field.

These are goods that many students find worthwhile and that contribute to the department's considerable success in the following key performance indicators:

- High enrollment – 1397 annual enrollment for 2014.
- High fill rate – trending between 94% and 99%.
- High course retention – 83% - 85%.
- High course success – about 65%-71%.

3.2. What are the weaknesses of your program?

The department is lagging behind in degrees awarded. This is mainly due to a previous degree program that was too complex and poorly received. This perceived shortcoming has been addressed and a new, more manageable program was approved by the state in May 2017.

African Americans consistently have the lowest success rates. Lacking guidance from administration, the department is unsure how to address this result.

3.3 What opportunities exist for your program?

If funding and enrollments stabilize, we could develop new short term field courses to meet student community needs. Stable funding and enrollments improve the prospects that new courses will be offered and the department's incentive to advance and improve curriculum.

3.4 What challenges exist for your program?

One ongoing challenge that has developed in the past four years is the problem of staffing. As the Environmental Sciences department has only two fulltime professors, when a professor is on leave, the program is impacted by the large number of sections that are taught by adjuncts.

A special challenge this department faces because of its small size is how to maintain consistency and growth during periods of professor leaves when many of the programs course offerings must be taught by adjuncts.

4.0 Student Learning Outcomes (SLO) Assessment

4.1 List your program level SLOs and complete the expandable table below.

	Program Student Learning Outcomes (PSLOs)	Date Assessment Completed	Date(s) Data Analyzed	Date(s) Data Used For Improvement	Number of Cycles Completed
1.	Analyze and explain the organization and dynamics of natural ecosystems.	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	1
2.	Examine, distinguish and characterize the ecological communities that compose natural ecosystems.	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	1
3.	Examine, identify and characterize natural ecosystems.	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	Fall 2015 and Spring 2016	1

4.2 Assessment: Complete the expandable table below.

Program Student Learning Outcomes Assessment for Instructional Programs at Fullerton College			
Intended Outcomes	Means of Assessment & Criteria for Success	Summary of Data Collected	Use of Results
1. Analyze and explain the organization and dynamics of natural ecosystems.	Common questions or problems. Written responses to homework study questions. Classroom or online chat room spoken responses to homework study questions. Examination questions. Classroom or online forum discussion.	Number of assessed students: 219 Number of assessed students who met the outcome: 180 Percentage of assessed students who met the outcome: 82%	Professors have examined and discussed SLO results and continue to revise course structure, content, and methodologies in order to improve student success.

<p>2. Examine, distinguish and characterize the ecological communities that compose natural ecosystems.</p>	<p>Common questions or problems. Written responses to homework study questions. Classroom or online chat room spoken responses to homework study questions. Examination questions. Classroom or online forum discussion.</p>	<p>Number of assessed students: 238</p> <p>Number of assessed students who met the outcome: 179</p> <p>Percentage of assessed students who met the outcome: 75%</p>	<p>Professors have examined and discussed SLO results and continue to revise course structure, content, and methodologies in order to improve student success.</p>
<p>3. Examine, identify and characterize natural ecosystems.</p>	<p>Common questions or problems. Written responses to homework study questions. Classroom or online chat room spoken responses to homework study questions. Examination questions. Classroom or online forum discussion.</p>	<p>Number of assessed students: 211</p> <p>Number of assessed students who met the outcome: 177</p> <p>Percentage of assessed students who met the outcome: 84%</p>	<p>Professors have examined and discussed SLO results and continue to revise course structure, content, and methodologies in order to improve student success.</p>

4.3 What percentage of your program level SLOs have ongoing assessment? Comment on progress/lack of progress.

All program SLO's have ongoing assessment. Assessments will continue at regular intervals according to college policy.

4.4 How has assessment of program level SLOs led to improvements in student learning and achievement?

This is the first ENVS program review to contain complete program level SLO assessments. Improvements in student learning and achievement cannot be measured without several cycles of program level SLO assessments. However, professors review the results of each round of SLO assessments at both the course and program level and continue to revise course structure, content, and methodologies in order to improve student success.

4.5 How has assessment of program-level SLOs led to improvements in transfer or certificate/degree awards?

The data necessary to evaluate this does not exist. However, even with many complete cycles of program level SLO's for this department, it would be difficult to tie assessment of program-level SLOs to improvements in transfer or certificate/degree awards for this department because of the low number of students majoring in ENVS and the fact that the department's primary course offerings consist of a single lecture/lab combination designed to meet the life science GE requirement for degrees and transfers.

4.6 What challenges remain to make your program level SLOAs more effective?

The major challenge is the collection of sufficient data to assess trends in student success then tie these trends to specific actions taken by department faculty to enhance student success. Because of the low number of course offerings in this department and the significant variation in student success that occurs between years dependent on factors beyond the control of faculty, assessing trends in student success and attributing them to specific actions taken by department faculty to enhance student success will likely require decades of assessment cycles.

5.0 Evaluation of Progress Toward Previous Goals/SAP's (Future program review templates for this section will identify "previous goals" as "previous *strategic action plans*"-- SAP's.)

5.1 List the goals from your last self-study/program review.

Enhancing the field experience through the use of appropriate field equipment

SLOA Data Management System

Outfitting the third floor greenhouse

5.2 Describe the level of success and/or progress achieved in the goals listed above.

Enhancing the field experience through the use of appropriate field equipment

The department successfully received funding for and acquired the following field-related equipment:

- Two spotting scopes and tripods – extensively used in ENVS 140 F Birds of Southern California
- Two field dissection scopes – occasionally used in ENVS 105 LF Environmental Biology Lab
- One weatherproof still camera – used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- One underwater video camera (as in GoPro Hero4) – used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- Two infrared trail camera – occasionally used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- Assorted snorkeling equipment – extensively used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- One wide format printer for printing large format aerial photos and maps – extensively used in ENVS 105 LF Environmental Biology Lab
- One 12-passenger van – extensively used in ENVS 105 LF Environmental Biology Lab

SLOA Data Management System

No funding was provided for such a system. Nonetheless, staff invested about 20 hours investigating this idea. We found that such systems are overly complicated to configure. And their infrequent use would require significant retraining each time they would be used. As a result, they would be

frustrating and time-consuming to the extent that there would be no net time savings in the use of an automated system as compared to manual data processing.

Outfitting the third floor greenhouse

Funding was approved, but no improvements were made. Our deliberations settled on the department faculty's preference to teach scientific and experimental practices directly in the field. Running a single experiment in a greenhouse nominally would require three whole meetings. And allocating time each week for ongoing operations would reduce time from field activities. Finally, faculty were concerned that allowing students to have independent access to the greenhouse, unaccompanied by a professor, would represent an unsatisfactory security risk.

5.3 How did you measure the level of success and/or progress achieved in the goals listed above?

Through acquisition and use of requested field equipment which facilitated interactions between students and the desired subject matter in field oriented classes.

5.4 Provide examples of how the goals in the last cycle contributed to the continuous quality improvement of your program.

Students used/will use underwater still and video cameras during Channel Island outings. Students shared/will share their images and videos with other students and professors. Trail cameras have been used to photograph island foxes and to attempt to capture images of a rarely seen nocturnal spotted skunk species on Santa Cruz Island. Experiences such as these generate student excitement about their interactions with course subjects and allow them to take ownership over aspects of their own learning.

The department purchased a new 12-passenger van with funds granted following our previous program review. This van is booked for our field classes Monday thru Thursday and Saturdays through most of the semester. Having this van guarantees that we can meet our field schedule.

5.5 In cases where resources were allocated toward goals in the last cycle, how did the resources contribute to the improvement of the program?

The department successfully received funding for and acquired the following field-related equipment:

- Two spotting scopes and tripods – extensively used in ENVS 140 F Birds of Southern California
- Two field dissection scopes – occasionally used in ENVS 105 LF Environmental Biology Lab
- One weatherproof still camera – used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- One underwater video camera (as in GoPro Hero4) – used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- Two infrared trail camera – occasionally used in ENVS 142 F Geology and Marine Biology of the Channel Islands

- Assorted snorkeling equipment – extensively used in ENVS 142 F Geology and Marine Biology of the Channel Islands
- One wide format printer for printing large format aerial photos and maps – extensively used in ENVS 105 LF Environmental Biology Lab
- One 12-passenger van – extensively used in ENVS 105 LF Environmental Biology Lab

These resources contributed to the improvement of the program in a myriad of ways through their uses in program courses as described above. They helped generate student excitement about their interactions with course subjects and allowed them to take ownership over aspects of their own learning. They also allowed faculty to diversify their teaching methods and the ways in which students could interact with their subject matter.

The 12-passenger van is booked for our field classes Monday thru Thursday and Saturdays through most of the semester. Having this van guarantees that we can meet our field schedule and caters to the needs of students who without this resource would be unable to attend off campus lab meetings.

5.6 If funds were not allocated in the last review cycle, how did it impact your program?

The SLOA data management system was the only instance of requests not being funded. Our investigation found that such a system was not useful. As a result, the lack of funding had no impact on our program.

6.0 Strategic Action Plans (SAP) [formerly called Goals (6) and Requests for Resources (7)]

Using the tables below, list the strategic action plans (SAPs) for your program. These plans should follow logically from the information provided in the self-study. Use a separate table for each SAP.

SAPs for this three-year cycle:

STRATEGIC ACTION PLAN # 1	
Describe Strategic Action Plan: (formerly called short-term goal)	Develop and offer additional short-term field-oriented courses.
List College goal/objective the plan meets:	College Goal #: 1 and 3 Objective #: 0
Describe the SAP: (Include persons responsible and timeframe.)	Professors in the ENVS department will endeavor to develop and offer additional short-term field-oriented classes as funding, enrollment demands, and staffing allow.
What <i>Measurable Outcome</i> is anticipated for this SAP?	Increases in FTES with in the ENVS department. Increased interaction between the community and college. Improvements in student success across all program level SLO's for students participating in these courses in addition to current program

	course offerings.
What specific aspects of this SAP can be accomplished without additional financial resources?	Because of the limited number of faculty within the ENVS program, additional course offerings would require overload by program faculty or hiring of adjunct faculty, but no resources other than these limited personnel requirements are anticipated.

If additional financial resources would be required to accomplish this SAP, please complete the section below. Keep in mind that requests for resources must follow logically from the information provided in this self-study.

Type of Resource	Requested Dollar Amount	Potential Funding Source
Personnel		
Facilities		
Equipment		
Supplies		
Computer Hardware		
Computer Software		
Training		
Other		
Total Requested Amount		

7.0 Long Term Plans

Describe the long term plans (four-six years) for your program. Please consider future trends in your narrative. (Identifying financial resources needed for these plans is optional.)

Continue to create new short, specialized field courses. The department's short field courses are especially popular to nature enthusiasts of all ages. They take advantage of the faculty's extensive field experience, and provide meaningful credits toward degrees and transfer.

Our vision is to create courses that provide useable college credit while introducing many local residents, teachers and nature enthusiasts to the abundant and interesting natural environments close by in Orange County.

Here are some examples of such courses:

- Coastal Ecology of Orange County
- Chaparral Ecology of Orange County
- Drinking Water and Sewage Treatment in Orange County
- Solid Waste Recycling and Disposal in Orange County
- Wildlife Corridors in Orange County

Attempt to cultivate adjunct faculty that can accept increase course loads to teach courses when tenured faculty are on leave.

8.0 Self-Study Summary

This section provides the reader with an overview of the highlights, themes, and key elements of this self-study. It should not include new information that is not mentioned in other sections of this document.

The Environmental Sciences department significantly supports Fullerton College's mission, vision and core values by:

- Engaging students in multiple modes of inquiry.
- Encouraging student curiosity.
- Cultivating student skills in the application of empiricism, reason and objectivity.
-

The Environmental Sciences department significantly supports Fullerton College's goals by:

- Delivering interesting and useful general education and transfer courses.
- Customizing courses in an effort to connect with broader audiences.
- Strengthening community connection by introducing students to local natural resources.

Courses offered by the Environmental Sciences department have high fill rates, high retention rates, and high success rates.

Trends for Enrollment, FTES and Sections have declined for the last five years possibly because of staffing disruptions as a result of faculty leaves, but also reflective of broader college wide trends.

When compared to peer institutions, the Environmental Sciences department has been performing with middle-of-the-pack retention rates (83-87%) and generally high success rates (65-70%).

The department is performing comparably in degrees awarded when compared to peer institutions.

Despite significant efforts by the department faculty, the achievement gap has failed to shrink for certain groups.

Field experiences have improved as a result of increased student access to and use of appropriate field equipment.

Since the purchase of a new Ford van dedicated to the Environmental Sciences department, field outing schedules are no longer impacted by van availability.

The ENVS department's long term goals involve enhancing existing field courses by the use of appropriate field equipment, and creating new short courses that increase learning opportunities in new and different field environments.

9.0 Publication Review

Fullerton College is committed to assuring integrity in all representations of its mission, programs, and services. As such, during the program review self-study process programs are required to document their publications (websites, brochures, pamphlets, etc.), when they were last reviewed, and denote the publication is accurate in all representations of the College and program missions and services. In the far right column please provide the URL where the publication can be accessed. If it cannot be accessed via the internet, please provide a sample of the publication with your program review self-study.

Publication	Date last reviewed	Is the information accurate?	URL of publication
Department Brochure	Currently Being Updated	Yes	N/A
Natural Sciences Division Website	2017	Yes	http://natsci.fullcoll.edu/programs.html

For publications that you have identified as inaccurate, please provide the action plan for implementing corrections below.

**Division Deans' or appropriate Immediate Management Supervisor (IMS)
Response Page**

*I concur with the findings
contained in this Program*

*I concur with the findings
contained in this Program
Review with the following
exceptions (include a
narrative explaining the
basis for each exception).*

*I do not concur with the
findings contained in this
Program Review (include a
narrative exception):*



Fullerton College Mission Statement

MISSION

Fullerton College advances student learning and achievement by developing flexible pathways for students from our diverse communities who seek educational and career growth, certificates, associate degrees, and transfer. We foster a supportive and inclusive environment for students to be successful learners, responsible leaders, and engaged community members.

VISION

Fullerton College will transform lives and inspire positive change in the world.

*Approved by Fullerton College
President's Advisory Council and
accepted by President Schulz
May 2017.*

VALUES

Community

We promote a sense of community that enhances the well-being of our campus and surrounding areas.

Diversity

We embrace and value the diversity of our entire community.

Equity

We commit to equity for all we serve.

Excellence

We honor and build upon our tradition of excellence.

Growth

We expect everyone to continue growing and learning.

Inclusivity

We support the involvement of all in the decision-making process.

Innovation

We support innovation in teaching and learning.

Integrity

We act in accordance with personal integrity and high ethical standards.

Partnership

We work together with our educational and community partners.

Respect

We support an environment of mutual respect and trust that embraces the individuality of all.

Responsibility

We accept our responsibility for the betterment of the world around us.