

## DEPARTMENT OR PROGRAM: Geology, Paleontology & Oceanography

### DIVISION: Math/Science

1. BRIEF DESCRIPTION OF PROGRAM:  
Geology, paleontology and oceanography are all small programs, each primarily offering one lecture course (Geol 100, Paln 110 and Ocen 100) and geology offering one lab course (Geol 101) each semester and paleontology offering one lab course (Paln 111) during spring semesters of even-number years. The numbers of sections of oceanography and geology have consistently decreased over the last 3 years, while paleontology increased by 1 section in 2009/10 as the paleontology lab was offered for the first time. All courses are CSU/UC transferable and fulfill GE requirements in science.  
One full-time faculty member covered all of the fall and spring sections in geology and paleontology, and 57% of those in oceanography. During the last academic year, adjunct faculty covered 2 sections in fall and 1 in spring. The one summer course, Ocen 100, continues to be taught by adjunct faculty.
2. Based on the elements in your *Core Program and Student Success Indicators* (provided by PRIE for each program) and the goals stated in your most recent Program Review, please identify any key successes and challenges.  
Geology LOAD, retention and success rates have consistently increased over the last 3 years. The phasing out of Geol 210, the more graphics-intensive approach of the traditional Geol 100 lecture (implemented in fall 2008) and the cancelation of the Geol 100 TV course in spring of 2009 are believed to be the primary reasons for these increases.

GEOLOGY	2007-8	2008-9	2009-10
LOAD	707	847	948
Retention %	82%	84%	87%
Success %	60%	66%	74%

Paleontology LOAD has risen by small amounts consistently over the last 3 years. Paln 110 consistently fills the earliest of all the classes in all 3 programs and generates the largest waitlist. This popularity may be due to the abundance of hands-on learning experiences in the course. The retention rates have consistently hovered in the 80's, but the success rates have continued to vary over a wide range. Fewer students in the program

would account for some of this variation since paleontology sections enroll 30 students, while geology and oceanography sections commonly enroll 60 students.

PALEONTOLOGY	2007-8	2008-9	2009-10
LOAD	527	585	602
Retention %	84%	87%	80%
Success %	72%	70%	64%

Oceanography LOAD has consistently increased as the number of sections decreased. 2009-10 was the last year that the lab class was offered; 2 sections in fall, one section in spring. Generally, students who are concurrently enrolled in lecture and lab are more successful in lecture and have more incentive to persevere than those in lecture only. The retention rate that usually hovers around 82% fell last year. The success rate continued to decline, probably due to the consistent decrease in lab offerings and adjunct-taught sections.

OCEANOGRAPHY	2007-8	2008-9	2009-10
LOAD	708	763	861
Retention %	80%	81%	75%
Success %	71%	61%	56%

The 2009-10 LOAD numbers for all 3 programs are well above the LOAD averages for the Math/Science Division (553) and the college (590) as well as the State's productivity target (525).

Information from student surveys indicates that many of the students in all 3 programs are not striving to earn a C since they can fulfill a CSU general education transfer requirement with a D. The student success data is based on earning a C or better, and therefore differs from the students' perception of success.

3. Are you on track for meeting the goals/targets that your program identified in its most recent Program Review? If not, please explain possible reasons why. If needed, update your goal/targets based on these reasons.

The course outline for PALN 110 (lecture) is still due to be updated as I am awaiting the implementation of the new CurricUNET system.

SLO's 1a & 2a for PALN 111 have been assessed.

Geol 100 was reformatted to fit a TTh time slot.

New fossils were acquired which (along with a few of the instructor's personal fossils) increased the number of fossil preservation example sets

from 4 to 6. The subsequent decrease in the number of students per group (from 7 or 8 down to 5) resulted in fewer passive onlookers during the group exercise and better student interaction.

Acquisition of samples of minerals, rocks, fossils and sedimentary structures has continued to be slow as they are difficult to locate for purchase and often require trips to the local rock shows.

2009-10 was the last year that the lab technician position was filled by an adjunct faculty member who had experience teaching courses in all 3 programs. She has since retired and will be replaced by a full-time laboratory technician who will devote 25% of her time to geology, oceanography and paleontology, and 75% to physics.

4. Have you identified any new goals or projects for the program to focus on during this next year? Please explain (grants, stipends, initiatives, etc.).
  - Update the course outline for PALN 110 (lecture)
  - Provide students with written explanations addressing their questions regarding webaccess, course format and class rules.
  - Start training the new technician in mineral & rock identification.
  
5. Are there any critical issues you expect to face in the coming year? How will you address those challenges?

**6. STUDENT LEARNING OUTCOMES (SLOs) AND ASSESSMENT FOCUS FOR THIS YEAR:**

- a. Academic areas: Identify at least one course SLO on which to focus. Describe the assessment strategies you will use and your method of reflection and documentation for this cycle.
  - Ocen 100 SLO 2b will be assessed using a quiz on graphic representations of the halocline, pycnocline and thermocline. Quiz scores will be documented.
  
- b. Student services areas: TBD

**7. SUMMARY OF RESOURCES NEEDED TO REACH PROGRAM ACTION STEPS**

*(Data resources: Educational Master Plan, 2008, Institutional Priorities, 2008-2011, College Index, 2009-2010, GE-SLOs, SLOs; department records; Core Program and Student Success Indicators; previous Program Review and Planning reports)*

- a. In the matrices below, itemize the resources needed to reach program action steps and describe the expected outcomes for program improvement.\* Specifically, describe the potential outcomes of receiving these resources and the programmatic impact if the requested resources cannot be granted.

\*Note: Whenever possible, requests should stem from assessment of SLOs and the resulting program changes or plans. Ideally, SLOs are assessed, the assessments lead to planning, and the resources requested link directly to those plans.

<b>Full-Time Faculty Positions Requested</b>	<b>Expected Outcomes if Granted and Expected Impact if Not Granted</b>	<b>If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.</b>
none	n/a	n/a

<b>Classified Positions Requested</b>	<b>Expected Outcomes if Granted and Expected Impact if Not Granted</b>	<b>If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.</b>
none	n/a	n/a

- b. For instructional resources including equipment and materials, please list the exact items you want to acquire and the total costs, including tax, shipping, and handling. Include items used for instruction (such as computers, furniture for labs and centers) and all materials designed for use by students and instructors as a learning resource (such as lab equipment, books, CDs, technology-based materials, educational software, tests, non-printed materials). Add rows to the tables as necessary. If you have questions as to the specificity required, please consult with your division dean. Please list by priority.

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
<p><b>Geology lab supplies:</b> compasses, seismograph  <b>Status:</b> new compasses, repair of seismograph</p>	<p><b>Expected Outcomes if Granted</b>  more efficient use of lab time if students are not sharing a compass; students learn the entire procedure individually; hallway seismogram display generates interest in geology</p> <p><b>Expected Impact if Not Granted</b>  continuation of status quo; students forget or won't buy a compass; students don't set the compass radius themselves</p>	<p>Doing the entire process helps ensure understanding needed for SLO 2a</p>
<p><b>GPO shared item:</b> Strange Days on Planet Earth Video Series  <b>Status:</b> New</p>	<p><b>Expected Outcomes if Granted</b>  makes the classroom material more relevant to the students in their personal lives; provides simple actions that concerned individuals can take to help curb growing environmental problems</p> <p><b>Expected Impact if Not Granted</b>  students feel that global environmental problems are too big for one person to make a difference</p>	<p>Encourages an appreciation for the environment and its affect on human health, biodiversity, etc.; Used in hour by arrangement assignments</p>
<p><b>GPO Shared Items:</b> minerals, rocks, fossils, sedimentary structures and marine samples (see list below)  <b>Number:</b> (see list below)  <b>Vendor:</b> Some items cannot be ordered from the usual vendors (Ward's, Cenco, etc.) and will require much research and possibly travel local rock shows to obtain usable specimens.  <b>Unit price:</b> generally between \$5-\$100  <b>Total Cost:</b> unknown, but chances of finding all of these items in the numbers needed is extremely low, so half of the maximum budget would probably suffice for a year  <b>Status*:</b> New, Upgrade &amp; Replace</p>	<p><b>Expected Outcomes if Granted</b>  hands-on learning; more engaged, motivated students; concepts reinforced; better student participation in smaller groups; more opportunities to develop teamwork and problem-solving skills</p> <p><b>Expected Impact if Not Granted</b>  continuation of status quo; students have few hands-on learning experiences, especially in the large lectures; students working in groups that are too large don't fully participate</p>	<p>If students are more engaged and less passive, hopefully they will be more successful in learning the material presented.  Geol 100 SLO 1b,  Geol 101 SLO 1b,  Ocen 100 SLO 1b,  Paln 110 SLO 3b,  Paln 111 SLO 1a</p>

vendor	item name	estimated unit price	# needed	estimated maximum extended price	purchased or ordered as of 3/24
fry's	UPS for seismograph	42.99	1	\$42.99	x
amateur seismologist	new part for seismograph	90.00	1	\$90.00	x
simply solutions	compasses	2.73	24	\$65.52	x
DeepDiscount.com	Strange Days on Planet Earth Video Series	31.96	1	\$31.96	x
ward's	alabaster gysum	15.50	1	\$15.50	x
ward's	anthracite	9.95	1	\$9.95	x
ward's	anthracite	11.00	1	\$11.00	x
ward's	slate	10.75	1	\$10.75	x
ward's	banded iron formation	34.95	4	\$139.80	
ward's	pyrite suns	26.75	7	\$187.25	
ward's	nautilus bisected shell	32.95	2	\$65.90	
ward's	stromatolites	69.00	8	\$552.00	
ward's	gypsum rosettes	6.95	3	\$20.85	
staples	clipboards (3 pack)	4.29	3	\$12.87	x
unidentified	pahoehoe samples	80-150	4	\$600.00	
unidentified	phosphate rocks	5-20	9	\$180.00	
unidentified	cross-bedded sandstone	20 - 80	4	\$320.00	
unidentified	graded bedding	20 - 80	4	\$320.00	
unidentified	fossil trackway	65 -200	1	\$200.00	
unidentified	small meteorite slice	60-100	2	\$200.00	
unidentified	pyrite crystal twins	30-90	3	\$360.00	
				2630.37	subtotal
				249.89	tax
				394.56	shipping
				3274.81	total

## 8. PROGRAM REVIEW PARTICIPANTS AND SIGNATURES

Date of this *Annual Update for Program Review and Planning* evaluation: 3/24/11

Primary program contact person & sole Full-time faculty: Linda Hand

Phone and email address: 650 574-6633; hand@smccd.edu

Administrators: Math/Science Division Dean Charlene Frontiera

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Primary Program Contact Person's Signature

Date

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Dean's Signature

Date