



Annual Program Review 2012-2013 - INSTRUCTIONAL REPORT

Division - Program

GEOLOGY/OCEANOGRAPHY

Authorization

After the document is complete, it must be reviewed and submitted to the Program Review Committee by the Division Chair.

Author: Dr. John Leland

Division Chair: Prof. Rick Guglielmino

Date Received by Program Review November 13, 2013

1.0. Trend Analysis

For each program within the division, use the data provided to indicate trends (e.g., steady, increasing, decreasing, etc.) for each of the following measures.

ORIGINAL DATA TABLE PROVIDED WITH INACCURATE DATA: Please see corrected table on next page

Program	Academic Year	FTES Trend	FTEF Trend	WSCH / FTEF Trend	Full-Time % Trend	Fill Rate Trend	Success Rate Trend	Awards Trend
Geology/Oceanography	2008-2009	208	8	826	32.5%	102.4%	73.1%	0
	2009-2010	215	8	834	39.0%	103.5%	67.4%	0
	2010-2011	196	10	618	34.0%	110.5%	69.1%	0
	2011-2012	196	10	646	46.2%	113.6%	69.5%	0
	% Change	-5.5%	+20.8%	-21.8%	+13.7%	+11.2%	-3.6%	--
	Four-Year Trend	stable	increasing	decreasing	increasing	increasing	stable	--

The FTEF data originally provided are wrong and are shown above. Whatever program was used to calculate these incorrect FTEF values apparently included multipull sections that do not increase FTEF and for which no additional pay was earned by any instructor. Also, the administration has not made it clear if FTEF numbers should reflect large lecture or not and if these data are captured when they calculate FTEF for documents like these.

My efforts to correct the data are shown in the table below. In the FTEF column, the lower number in the range given shows the total FTEF without large lecture, the higher number shows the total FTEF with large lecture. WSCH data were backed out of the original WSCH/FTEF shown in the table above and FTEF data provided to allow for a recalculation of WSCH/FTEF. In doing so, FTES appeared to be incorrect and these data were corrected based on the inferred WSCH and a 16.5 term length multiplier. WSCH/FTEF trends are calculated using the higher FTEF number to reflect student contact hours versus paid faculty hours in the classroom.

The Full-Time % Trend data were a puzzle as presented in the original table above. They did not seem to reflect the loss of one full-time faculty member suffered by our department with the

resignation of Dr. Catherine Powers (she moved with her family to Colorado) at the end of the 2009-2010 academic year. The total number of full-time faculty assigned to Geology/Oceanography for the last four years was as follows: 2.4 for 2008-2009, 2.4 for 2009-2010, 1.4 for 2010-2011, and 2.0 for 2011-2012. These numbers were used to recalculate the Full-Time % trend using the higher FTEF number in the FTEF Trend column (the number that includes large lecture in calculating FTEF).

TABLE WITH CORRECTED DATA

Program	Academic Year	FTES Trend	FTEF Trend	WSCH / FTEF Trend	Full-Time % Trend	Fill Rate Trend	Success Rate Trend	Awards Trend
Geology/Oceanography	2008-2009	208	9.2-11.1	595	21.6%	102.4%	73.1%	0
	2009-2010	210	8.2-9.7	687	24.7%	103.5%	67.4%	0
	2010-2011	194	8.4-9.4	657	14.8%	110.5%	69.1%	0
	2011-2012	203	8.4-9.6	673	20.8%	113.6%	69.5%	0
	% Change	-2.4%	-13.5%	+13.1%	-3.7%	+11.2%	-3.6%	--
	Four-Year Trend	Decrease and then increase	Decrease and then stable	Increased and then stable	Stable with decrease one year due to loss of a full-time instructor while one instructor had 0.6 release time	increasing	stable	--

1.1 Describe how these trends have affected student achievement and student learning:

Success rates for students in the program seem to be insensitive to the data shown in the table and average 69.8% with very little spread. Notably, this accompanies an increase in the cost-efficiency of the department over the four-year trend as reflected by an increase in the WSCH/FTEF from 595 in the 2008-2009 academic year to 673 in the 2011-2012 academic year. Clearly, large lecture formats and increased fill rates do not cause a decline in student success in our program.

1.2 Please explain any other relevant quantitative/qualitative information that affects the evaluation of your program?

We lost two seasoned, excellent adjunct geology/oceanography instructors at the end of Spring 2012: Dr. Alice Baldrige took a tenure-track professorship at St. Mary's College in Moraga, California, and Prof. Franky Telles enrolled in a Ph.D program at Lomonosov Moscow State University to work on sediment flux into the Arctic Ocean. We have replaced them with the hire of an excellent new adjunct instructor, Prof. Paul Scrivner, and increased course loads for existing instructors. We will eventually need to hire a tenure-track, full-time instructor for the program. A request for this position is not being submitted this year because of the budget.

2.0. Student Learning and Curriculum

Course Level

Year	SLOAC Course Count		% of Courses Assessed
2010-2011	4	100.0%	50.0%
2011-2012	4	100.0%	75.0%
% Change		+0.0%	+50.0%
Four-Year Trend		stable	increased

Provide the following information on each department and program within the division.

List each program within the division	Active Courses with Identified SLOs		Active Courses Assessed		Course Sections Assessed	
	N / N	%	N / N	%	N / N	%
Astronomy	3/3	100	1/3	33	1/4	25%
Chemistry	7/7	100	7/7	100	1/3	33
Geology and Oceanography	4/4	100	3/4	75	¼	25
Physics	7/7	100	6/7	85.7	9/10	90 %

2.1 Please comment on the percentages above.

All our courses except the Oceanography 116 lab have had SLO's assessed. We have requested data from the instructors who taught the Oceanography 116 course during 2011-2012 but have not yet received it for analysis.

2.2 Using the results from your division/departments recent assessment reports, please summarize any pedagogical or curricular changes that have been made as a result of your course assessments.

Students have requested more online, interactive computer animations so one instructor, Dr. Leland, has implemented the use of Moodle in his oceanography course and the use of Mastering Geology in his geology courses for Fall 2012. So far, students in geology show increased understanding of key concepts in class and on exams. However, overall performance on exams has not improved. Exams are a mixture of about 30% multiple choice and 70% short answer questions. Better integration of exams with online material might improve exam scores and will be pursued in the next iteration during Spring 2013.

2.3 Please list all courses which have been reviewed in the last academic year.

Note: Curriculum Review is required by the Chancellors Office every 6 years.

Geology 101, Geology 102, Geology 111

Degree, Certificate, Program Level

List each degree and certificate, or other program* within the division	AA/AS Degree PLO Identified		AA/AS Degree Assessment Cycles Completed		Certificate PLO Identified		Certificate Assessment Cycles Completed	
	YES	NO	YES	NO	YES	NO	YES	NO
Physical Sciences AA	X			X		X		X

2.4 Please comment on the percentages above.

The only degree./certificate program in the division is the Physical sciences AA . The PIO for that has just been updated but the program has not been reviewed or assessed . The program began in the Spring of 12 and so it is too new to assess. The first part of the assessment will be at the end of Spring 13..

2.5 Using the results from your division/departments recent assessment reports, please summarize any changes that have been made as a result of your program level assessments. Your summary should include a summation of the results of all degrees, certificates, and other programs which were recently assessed.

N/A

2.6 Please list all degree/certificate programs within the division that were reviewed in the last academic year.

The Physical Sciences AA was instituted(not reviewed) in the last academic year.

2.7 What recent activities, dialogues, discussions, etc. have occurred to promote student learning or improved program/division processes in the last year?

Mark an "X" in front of all that apply.

X	Curricular development/revisions of courses
X	Curricular development/revision of programs
	Increased improved SLO/PLOs in a number of courses and programs
X	Other dialog focused on improvements in student learning
	Documented improvements in student learning
	Increased/improved SLO/PLOs in a number of courses and programs
X	New degree or certificate development
X	Best Practices Workshops
X	Conference Attendance geared towards maintaining or improving student success
	Division Retreat in 2011-2012
X	Division or department attendance at Staff Development activity geared towards maintaining or improving student learning
	Division Meeting Minutes
	Reorganization

Please comment on the activities, dialogues, and discussions above

Dr. Leland's 2012 attendance of the Tucson Fossil, Mineral, and Gem Show in January and the American Association for the Advancement of Science meeting in Vancouver in February led to many discussions with the other faculty about demonstration ideas, proposing a course that would explore geo-engineering solutions to global climate change and resource use, brief discussions with Darren Leaver about an environmental science program, and discussions on the implementation of an earth science gallery with interactive demonstrations that would change weekly and would be tied into that week's curriculum in geology and/or oceanography. At the upcoming American Geophysical Union meeting this December in San Francisco, Dr. Leland plans to attend sessions on interdisciplinary teaching of geosciences for a sustainable future with an eye toward interacting with others who have already or are interested in teaching a GE level course on geo-engineering solutions to global climate change and resource use. Attendance to the AAAS meeting in February led directly to a scholar student's research topic on the technology of hydro-fracturing for natural gas extraction, in part using the recorded lectures from the meeting. In addition, the idea of creating a AS in the Earth Sciences has been discussed.

3.0 Reflection and Action Plans

- 3.1** Based on your data and analysis presented above, as well as on issues or items that you were unable to discuss above, comment on the Strengths and Weaknesses of the Program

Strengths

List the current strengths of your program

1. Strong, motivated instructional faculty
2. Good inventory of teaching tools
3. Good dialogue between adjunct faculty and full-time faculty

3.2 Weaknesses

List the current weaknesses of your program

1. Lack of tenure track faculty to help with program
2. Lack of part-time worker to help maintain the inventory of teaching tools in the stockroom
3. Lack of diversity in course offerings—need to create new courses or bring back courses that haven't been taught for a while (such as Geology 102)

- 3.3** Using the weaknesses, trends and assessment outcomes as a basis for your comments, please briefly describe any future plans and/or modifications for program/division improvements. Any plans for reorganization should also be included, along with a resource request if applicable.

Plans or Modifications	Anticipated Changes/ Improvements	Link to EMP, Plans, SLOs, PLOs, ILOs
Offering Geology 102 in Spring 2013	Increases diversity of courses offered.	EMP 3.5

2011 PROGRAM REVIEW**Section 4: CHAC REQUEST**

**PHYSICAL SCIENCES-
Geology
Sr. Instructional Lab Tech**

I:PS.GO-1

If this is a repeat request, please list the year(s) requested: _____

4.1. Describe the position including the complete description used to advertise for the position. Also include the division/department/program or service and full-time percentage for the position.

The position is for an Senior Instructional Lab Technician (Geology/Oceanography). The person hired will work 20 hours/week. Some evening hours (no more than 4 hours/week) will be required at times to assist evening faculty. The person hired will manage supplies and equipment for the geology and oceanography department. A knowledge of rock, mineral, and fossil identification is desired with a minimum requirement of a AA degree in the sciences with a bachelors degree in geology or a closely related field desired. Management of this material includes setting up and taking down labs for instructors, organizing lab and lecture materials for instructors at their request, ordering supplies, maintaining organization of the materials, maintaining hallway displays, and ensuring the function of computer and electronic equipment and microscopes. It is expected that the individual hired will interface with IT, other appropriate technicians on campus, and off campus as needed to seek assistance in maintaining this equipment. The person hired will also be expected to interact with faculty in the geology and oceanography program to establish inventory needs. The person hired will be also expected to have sufficient knowledge to maintain a safe working environment for all in the stockroom.

4.2 Criteria:

- a) Are there state or federal mandates particular to this program/service?
If so, please describe.

There are no state or federal mandates that I know of that I apply to this program/service.

- b) How does this position support the objectives and functions of the college in regards to the Mission Statement, EMP goals, annual college goals and/or student need?

The request for this position support the objective of increasing innovative learning strategies in the sciences and supports EMP goals 1.1, 1.2, and 3.5.

- c) Please provide quantitative data to support your request (such as program review, research office reports, surveys, etc.)

The geology/oceanography program has enrollments of just over 200 FTES every year. Other science programs with smaller FTES have full-time lab technicians. Our program has limped along for years without assistance.

- d) Is this request related to compliance with a collective bargaining agreement?
If so, please explain.

No

- e) Are there industry standards that directly relate to this position? If so, please explain.

Yes. The individual hired must have the ability to identify and classify certain rocks, minerals, and fossils. The individual also needs to have a basic understanding of the composition of some mineral or rock samples to better ensure the safety of those who handle them. There are some hazards associated with careless handling of some earth materials, such as cut hazards, inhalation hazards, or toxicity hazards, and the individual hired must have sufficient knowledge of these materials to appreciate these issues.

4.3 Additional Information

- a) What implications does the addition of this position have on: budget, staffing, facilities and equipment?

The position will restaff a position that was lost with the resignation of Beraki Woldehaimonot. Due to the budget situation, the geology/oceanography department did not seek an immediate replacement. At Step 1, Row 33, the monthly cost of this position would be $\$4154.43 \times 50\% = \2077.22 . The position should be at least a 10 month position, so the annual salary cost would be $\$20,772.20$, not including benefits

- b) Discuss any benefits your program may have lost from not receiving this requested position.

The geology/oceanography department has equipment, supplies, and other materials spread between two locations, CS280 and CR230. Maintenance of the electronic and computer equipment is more of a task than the two full-time faculty can manage. Adjunct instructors in the program have no one to assist them with their lab needs. The impact is that some instructors elect to simply not use our supplies and equipment and their students do not receive the educational benefit for which these materials were purchased.

- c) Are there any special concerns that are not addressed in this request? If so, please explain.

No

d) Describe how this position enhances student success and/or program outcomes.

With an assistant lab technician, geology and oceanography students will be able to have better access to the materials and equipment available for student use. A system in which the assistant lab technician sets up instructor requested materials on carts on a weekly or biweekly basis will greatly facilitate the use of the materials we have. Hands-on learning, in lecture mini-labs, and more complex experiments for labs can be set up to give students a better learning experience. There will be less dependence of the adjunct faculty on the full-time faculty for assistance. Because there are only two full-time faculty in geology/oceanography, the current system does not function well enough to properly ensure good access to materials for adjunct faculty use.

4.4 Please attach data from Human Resources on new classified hires in your program during the past five years, including the full-time percentage of each new hire.

Beraki Woldehaimonot held the position from Jan. 30, 2008, to his resignation March 2, 2009. Dr. Woldehaimonot left the position to take a full-time instructional job at LACC

2012-13 PROGRAM REVIEW**PHYSICAL SCIENCES****FTF Geology/Oceanography****I:PS.GO-2****Section 4
IHAC Request**If this is a repeat request, please list the Resource ID code or year requested: 2010-11

- 4.1** The Office of Instruction will provide data on instructional hires during the past five years, including zzzz the full-time percentage of each new hire.

a) Number of full-time faculty currently assigned to the Program	2
b) Number of full-time faculty assigned to the Program in 2005	3
c) Does this position cover classes currently taught by adjuncts? Yes or No	Yes
c) Does this position contribute to program expansion? Yes or No	No

4.2 CPF Index (Committees Per Full-time Faculty)

1. Total number of full-time faculty members in this department/program.	2
2. Total number of committees in which all FT faculty members in this area participate (Governance and other campus related committees & participation).	6
3. CPF INDEX (Total of # 2 divided by #1)	3

Why is this relevant? Full-time faculty in small departments carry heavy burdens, doing all the paperwork scheduling, and support for adjuncts., as well as teaching full-time. Also, shouldn't release time factor in here somehow? If someone has release time, they are likely to be on more committees and their full-time status should be decreased.

4.3 Status of Released Time Faculty

Faculty Name	Release Time Position	% RT	Term of Assignment
none			

4.4 How does this assignment relate to the college's Mission Statement?

The geology & oceanography program provides general education physical science courses with accompanying labs that satisfy transfer and AA/AS requirements for students. The courses are also foundation courses for potential earth and environmental science majors. In general, some of the goals of these courses are to teach students how science addresses questions of universal origin (in comparison to religion, for example) and to teach students about the scale of the processes that work to shape the Earth's surface and their impact in everyday life. As such these courses serve to "... foster the development of critical thinking and lifelong learning" and to "... provide students with the opportunity and support to gain the knowledge and skills necessary to meet their educational, career, and personal goals."

4.5 How does this position relate to the objectives and functions of the college?

- | | |
|--|------------------------------|
| a) Associate Degree | d) Basic Skills development |
| b) Transfer to a four-year institution | e) Noncredit Adult Education |
| c) Career and Technical Education | f) Personal enrichment |

All classes taught can be used toward the requirements for an AA degree, for transfer to four-year schools, for personal enrichment, and for the beginning of career training in the geosciences.

4.6 Describe how this position enhances student success. Ex: enhances instructional skills, meets community or industry needs. Contributes to state of the art technical education, etc. What measureable outcome will result from filling this request?

The geology & oceanography department typically serves more students in terms of census enrollments than any other department in the Physical Sciences Division. During the 2011-2012 academic year, for example, census enrollment in the four different courses offered by the geology & oceanography department comprised almost 2% of college-wide enrollments. The 2 full-time faculty in charge of this program comprise about 1% of the full-time credit faculty (if there are currently 190 full-time faculty). The full-time faculty percentage for the department stands at 39%, the second lowest in the Physical Sciences Division.

The program has lost two key adjunct faculty and has struggled to find adequate replacements. When the department was granted a full-time hire in 2011, it gave that opportunity to the physics department instead in anticipation of Rick Guglielmino's taking on of Division Chair duties and the resulting loss of any dedicated full-time faculty from physics. Nothing has changed for us; geology/oceanography still needs to replace the full-time faculty position we lost when Catherine Powers resigned in 2009.

Despite the "introductory" nature of the geology and oceanography courses taught, these are the last physical science courses most of our general education science students will ever take. As such, the program strives to offer these courses in the most attractive, innovative ways while maintaining academic rigor with the hope that students will be inspired to take a greater interest in the sciences in general. At minimum, the program seeks for students to achieve basic science literacy with regard to the oceans and the Earth.

Some students taking these courses are motivated by more than the desire to fulfill a general education requirement. Students majoring in environmental science, geology, ocean science, physics, engineering, and astrophysics take these courses as do returning students and general education students who have questions about Earth's ancient history or earthquakes or who wish to learn more about the oceans and their role in climate.

Full-time faculty in geology and oceanography spend the extra time required on field trips and instructional innovation. Student learning increases dramatically when students are exposed to real materials in real settings on field trips and many of those students become inspired to pursue more study in the sciences.

A measurable outcome of filling this request is a geology/oceanography department that can begin to offer a more diverse curriculum, innovate in educational methods as well as course design, create research opportunities for students, and take students on more field trips.

4.7 Are there anticipated negative impacts for not hiring this position? If so describe.

We have lost key adjunct faculty and need their replacement by a full-time faculty person to ensure continued program success. In 2011-2012, Prof. Pal taught a 100% load in the program (and additional overtime load in business) and Prof. Leland taught a 120% load with some large lecture overload each semester, making the full-time faculty percentage 48%. In 2013-2014, Prof. Leland will be gone on a one year banked time leave, reducing the full-time faculty percentage to about 21%. The department has no stockroom technician to provide any kind of support for adjunct faculty. In short, there is too heavy a burden in this department on the full-time faculty to support field trips, assist adjunct faculty with their needs, and manage labs and a stockroom full of materials equipment. This department needs another faculty person.

4.8 Are there any other special concerns not previously identified? If so, please explain.

The geology and oceanography program had a third full-time faculty member beginning in Fall 2005. The first person hired into the position in Fall 2005 was Prof. Jenny Hall, who left after one year to move to Oregon. Her replacement, Prof. Catherine Powers, stayed for 2.5 years and proved to be an excellent teacher and an excellent colleague. Prof. Powers, however, also chose to move away, in this case with her husband and children when her husband got a job in Colorado. Both of these people were of excellent quality but family circumstances caused them to move. The program needs a third full-time faculty person who could stay and help develop new curricula as well as lead field-based classes.