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ENROLLMENT TRENDS

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STUDENTS & STUDENT SUCCESS

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SLO / SAO

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Program Review - 2015-2016

Science - Earth Sciences**Module: Division Purpose****Question:** Describe the purpose of the Discipline/Program/Service.**Answer:** The Division's course offerings and programs equip students with the knowledge and skills they need to understand the world around them and prepare them for a variety of careers by earning certificates and degrees, or transferring to 4-year colleges and universities. The Earth Science discipline has the following subject areas: Geology, Earth Science, Oceanography, Environmental Science, and Geography under its umbrella.**Question:** Describe how the stated purpose aligns with the college mission statement.**Answer:** In alignment with the College's vision and mission, the Division strives to educate and prepare students to realize their dreams through the completion of a variety of science based professional programs or pursuing and furthering their training and education at degree granting institutions.**Module: Enrollment Trends****Question:** Describe the trends in Enrollment and FTES. Given the data, what are the implications for your division? If relevant, discuss each discipline separately.**Answer:** Enrollment and FTES remained essentially unchanged from Fall 2009 to Fall 2013. For this period, the average enrollment number has been 512, while the FTES was at 55.

Geology is one of 18 courses that satisfies the natural science GE requirement for an AA degree and is one of 11 courses that satisfies the IGETC physical science requirement. Additionally, Geology 1 and geology 6 taken together satisfy the IGETC science laboratory requirement. To date, all Earth Science courses are being offered to students for a GE requirement. Given that there is a full-time, tenure-track geology instructor, it is imperative that the geology program has to expand and start offering more geology sections. The program has a qualified professional with the capacity to create new geology courses too. This way instead of offering geology as a GE course, we can implement AA degree in Geology. So, the bottom line is to increase course offering in geology classes so that as the enrollment increases we can diversify the courses and eventually recruit students for AA degree in Geology.

Question: Given the data, describe the trend in section counts and average class size.**Answer:** The data shows section counts and average class sizes had essentially remained same from Fall 2010 to Fall 2014 for all courses in the Earth Sciences. Average section count of all courses was about 13, while average class size was at an acceptable level of 37. Section count had remained essentially unchanged during the 5-year period, so an increase in section count would now be desirable.**Module: Students and Student Success****Question:** Based on the demographic trends in enrollment, what are the implications for your Discipline/Program/Service?**Answer:** With few exceptions, the data primarily reflects the demographics of the college's student population. Numbers in parentheses are for college.

Gender distribution:

- Females: 55% (59%)
- Males: 45% (41%)

Age Distribution:

- 19 and under: 28% (22%)
- 20 to 24: 42% (34%)
- 25 to 34: 20% (24%)
- 35 and over: 10% (20%)

Ethnic Group Distribution:

- Afr Am/Black: 35% (37%)
- Amer Indian: <1% (<1%)
- Asian/Pac. Isl.: 5.6% (7%)
- Hispanic/Latino: 43% (37%)
- White: 11% (13%)

The program is dominated, as is the college, by a preponderance of Hispanic and African-American students (78%). However, during the five year period (2010 to 2014) there were 6% more Hispanic students taking Earth Science classes; African American students taking Earth Science classes declined by 2%.

There has been a significant difference in the age distribution of students taking Earth Science classes versus other courses in the rest of the college: 70% of the students registered for Earth Science classes were under 24 years of age, while students in the same age bracket that registered for other courses in the college were at 56%. That is, younger students were inclined to take Earth science classes.

There was no significant difference in the ages of students taking Earth Science classes from the rest of the college classes.

Question: Given the data, describe the trends in Success Rates and Retention Rates. What are the implications for the Discipline/Program/Service?

Answer: Retention Rate by Mode of Instruction (College data in parentheses):

- Classroom: 88% (83%)
- Online: 85% (82%)

Success Rate by Mode of Instruction (College data in parentheses):

- Classroom: 64% (63%)
- Online: 58% (59%)

The retention rate for courses delivered in the classroom was consistently high at 88%. However, the success rates was not as great, it stood at 64%. This suggests that students performing below their own expectations opted to drop the classes. Compared to students from the rest of the college, students taking Earth Science classes did not show any significant difference in both the retention and success rates.

Strengthening our tutoring services may improve the student success rate.

Question: Compare the successful course completion rates of the Discipline(s) in the Division over time and with the college average.
If the rate of any of the Discipline(s) is lower than the college average, what factors contribute to the low rate (s)? What strategies, current or planned, address this?
If the rate is higher than the college average, what factors contribute to the higher rates?

Answer: The successful course completion rates for all Earth Science disciplines for all modes of instructional delivery from Fall 2010 to Fall 2014 was 70%, while the college average was at 63%. There is a 7% higher performance by students in the Earth Science courses, but can be taken to be about the same as the College average. This is not a significant difference and hence no conclusions may be reached on the basis of this data.

Question: Compare the equity gap in the successful course completion rate(s) in the Discipline(s) over time and with the equity gap of the college over-all.
If the equity gap is higher than the college average, what factors contribute to the large gap? What strategies, current or planned, will address this?
If the equity gap is lower, what factors contribute to the smaller gap?

Answer: The equity gap in the successful course completion rate for all Earth Science disciplines was at 23.4 while the college average was 22.9, making us at about the same level as the rest of the college.

Question: Given the data, describe the trends in Degrees and Certificates awarded. What are the implications for your Discipline/Program/Service?
What does the Division do to encourage Certificate and Degree completion?

Answer: During the reporting period from Fall 2010 to Fall 2014, 3 students from biology and one student each from physics and geography earned AA degrees. There were no students from the Earth Science disciplines that were award AA degree or certificates. In the Division there have been on-going discussions on expanding the course offerings in geology to pave the way for implementing a robust geology program to be able to award AA degree as well as start a new training program for geology laboratory technicians with AA and skill certificate.

Module: Staffing Trends

Question: Describe the trends in FTEF. What are the implications for your program?

Answer: From Fall 2010 to Fall 2014, the FTEF for the various Earth disciplines has remained low, ranging from 0.20 to 1.0. As we plan to increase enrollments for Oceanography, Earth science, Environmental science, Geology, and Geography, the FTEF allocation for all these disciplines would have to be increased in coming semesters.

Question: Are staffing levels adequate to fulfill the purpose of the Discipline/Program/Service? Explain.

Answer: The staffing levels are not adequate to fulfill the current and future purposes. To strengthen the Earth Science Program, there is an immediate need for one additional full-time Instructor in Earth Science and a full time lab tech to manage and run the Earth Science laboratories.

For the last six years, courses in the Earth science program have been taught by one full-time instructor (who also serves as the EARTH SCIENCE lab tech) and five part-time instructors.

A breakdown of courses offered per semester, standard hours per week for each (given in parentheses), and staffing levels in the Earth Sciences Programs is given below:

Geography: 2 sections of Geog 1 (3), 2 sections of Geog 15 (3), a section of Geog 2 (3): Total: 15 standard hours per week

Environmental Science: 1 section Env Sci 1 (3); Total: 3 standard hours per week

Oceanography: 1 section Ocean 1 (3); Total: 3 standard hours per week

Geology: 3 sections of Geol 1 (3) [beginning SP 2015 a total of 4 sections will be offered; and starting SU 16, a section of Geol 12 (3) is scheduled]; 1 section Geol 6 (3); Total: 18 standard hours per week

Earth Science: 2 sections of Earth 1 (3), 1 section of Earth 2 (3); Total: 9 standard hours per week

Grand Total instructional standard hours per week: 48

Full time faculty on the ground: 1

The full time faculty teaches 15 standard hrs per week with more than two-thirds of the classes offered in the Earth Science Program being taught by adjuncts.

We could easily double our offerings and still fill every section. All Earth Science courses have great demand and are ready to add sections. Our short term growth plan is to add the following courses: one Geology 6 lab, an Env Sci lab class, Oceanography lecture and lab classes, and several geography courses such as Geog 3, 14, 31, and 32. In addition, in the short term we plan to increase the number sections of the already running courses such as Geol1, Geol 6, Oceano 1, Env Sci 1, Geog 1, and Geog 15.

According to LACCD guidelines, 3 out of 4 faculty in a discipline must be full-time. Based on the current levels of course offering (ignoring future growth plans in course offerings) the available data indicates that we MUST hire a full time faculty to meet LACCD requirements and avoid penalty. In other words, the ratio of full-time/part-time faculty warrants and justifies the need to recruit at least one Earth Science faculty.

To adequately staff and meet the needs of our Earth Science programs, the Division has prepared resource requests to hire a probationary Earth Sciences faculty and a physical Science laboratory technician that would also serve and manage physics and Astronomy laboratories. Therefore, we are submitting an FPIP request for an EARTH SCIENCE FACULTY POSITION, under General Education and Transfer Category. The individual submitting this application is Beraki Woldehaimanot. All nine regular science faculty of the Division support this application. Their signatures of support were obtained at the divisional meeting of November 3, 2015.

Hiring one Earth Science faculty in addition to the resident tenured-instructor with a degree in geology would complement his experience and training. The hiring of the new faculty would bring about a greater breath of knowledge and can usher in a revival of a host of Earth science courses and incrementally integrate them into West's earth sciences curriculum. This hire would bring to the program a much-needed discipline in the folds of the college. This highly demanded discipline would have the capacity to attract students and hence increase the student body of the college. More importantly, the faculty to be hired would be able to develop a certificate program in information system (GIS), a system designed to capture, store, manipulate, analyze, manage, and present all types of data. GIS is currently in high demand by governmental and nongovernmental institutions that involve engineering, planning, management, transport/logistics, insurance, telecommunications, and business. GIS applications are the foundation for many location-enabled services that rely on analysis, visualization and dissemination of results for collaborative decision-making. GIS applications make it easier for users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.

Question: Please/reassigned time. Describe the Reassigned and Release time assigned to faculty in the division. Include the faculty name, amount of release/reassigned time, length of time the assignment will last (one semester, one year, if it's renewable, etc.), and the purpose of the r

Answer: There is none from the Earth Science discipline with released or reassigned time. The Chair of the Division, Dr. Abraha Bahta has 0.7 FTE in reassigned/release time.

Module: Functions and Services, Academic Divisions

Question: List the functions and services provided by the Office / Program / Service.

Answer: Currently Earth science courses (Geology, Earth Science, Oceanography, Geography and Environmental Science) serve fulfill general education requirements for AA degree and for transfer preparation to the UC and Cal State.

Question: What are the emerging trends in technology that affect the program?

Answer: Educating students in the Earth Sciences will require familiarizing them with emerging new technologies in terms of using computer softwares used to analyze data, and various equipment and devices for conducting measurements and for data collection purposes. Owning such technology would be vital in producing well versed graduates from our college.

Question: Describe the technological advances that have been implemented to improve and streamline the Discipline/ Program/Service.

Answer: A few devices and gadgets have been purchased for Environmental Science hands-on exercises. In addition, students in most Earth Science classes (Geology, Earth Science, Environmental Science) have access to instructor-prepared, supplemental online resources in the college's course management system, Etudes. However, a lot remains to be done in terms of incorporating technology to improve and streamline the Earth Science education. A few of the most important technological equipment needed in the Earth Science education include polarizing microscopes, a simple, less-sophisticated seismograph, solar panels for education purpose, and subscription in educational videos and journals to be available in the College Library and in the Earth Sciences lecture rooms.

Module: Survey Results

Question: Describe the results of relevant surveys (point-of-service surveys, student surveys, staff surveys).

Answer: Results of latest available district-wide student surveys for 2014 did not include breakdown by disciplines or at least by program so that comparison can be made on what students say about their educational experience in the Earth Science disciplines with other disciplines in the division and the college.

Question: Discuss the implications of the survey results for the program.

Answer: There were no issues, questions, or comments raised by students specific to the Earth Science program. Thus, no discussion on the implications of the survey! It would be very important for the district-wide student survey results to include a breakdown to the discipline and division level.

Module: Curriculum

Question: I assistance that may be needed to resolve the problem. Missing course outlines of record: Refer to the report of courses with missing CORs, which is posted at the link in the Instructions section. Please describe the steps the division has taken or plans to take to correct the problem. Describe the additiona

Answer: Work is in progress to update course outline of records.

Question: Out-of-date course outlines of record: Refer to the report of courses with CORs that are out-of-date. Please describe the steps the division has taken or plans to take to correct the problem.

Answer: There are no Out-of-date course outlines of record.

Question: How does the department determine that classes are taught consistently with the official course outline of record?

Answer: There is divisional directive to do that. The full-time instructors and adjuncts of the discipline meet at the start of every semester to ascertain that the directive is followed. Further, the adjuncts are given copies of the official course outline of record. All faculty are required to submit a copy of course syllabus by or before the second week of the semester. The syllabus must reflect what is on the course outline. Performance evaluations on the instructors also dictate that they follow protocol.

Question: Are required courses scheduled in appropriate sequence to permit students to complete the program in the prescribed program length?

If yes, describe the rationale upon which the sequence is based.

If no, what is the plan for alleviating these problems? Explain.

Answer: The course offerings in the Earth Sciences along with other subject areas in the Program are aligned with other disciplines in the Division to facilitate for the college-ready students to earn AA degree or transfer within two years. The Division has published road map for transfer to various UC and CSU institutions with AA in two years.

Question: How does your division assure the relevance, appropriateness and currency of each of its programs? Cite each program (degree/certificate program or meaningful grouping of courses) and the student data and environmental scan data that support the assertions.

Answer: The Division uses all instruments within the institution (Academic Senate, Curriculum Committee) to ensure the relevance, appropriateness and currency of the programs.

Question: ybrid classes?

How can the outreach, online and hybrid classes be improved? What outreach, online and hybrid classes has your department offered?

How many courses are offered via Distance Education, and for how many has a COR addendum for DE been prepared?

What are the benefits and problems associated with outreach, online and h

Answer: During the Fall semesters of 2007 through 2009 Geology classes were taught in classrooms. A successful hybrid Geology 1 was offered in the Winter of 2010. Beginning Spring 2011, Geology 1 was offered both on campus and as online course. These new efforts are attracting new students to the discipline as witnessed by huge turnouts and classes were at maximum capacities. Many had to be turned away. There is a huge demand for online geology classes. Given the high demand, there is a need to add more sections. The one big challenge with the online Geology 1 class, as with all online classes, is ensuring whether students are taking the exams themselves or are being helped by others. My personal suggestion would be to require students to take midterm and final exams on campus or, for those who can't make it to come to WLAC, to establish examination centers at all educational institutions throughout the nation that promote online education so that students are required to take the comprehensive final exams in these centers.

Question: Describe any long term changes or additions to the curriculum that you are exploring, planning or developing.
Changes that you plan to initiate in the coming year should be reflected in the Planning Section.

Answer: One addition to the Earth Science curriculum that is planned to begin in Summer 2016 is a course in California Geology (Geol 12). The course outline has already been approved by WLAC. This would give students wider choices of Earth science courses.

Question: List new or changed degrees and certificates that have been approved by the Curriculum Committee during the previous year, or are in the planning stages.

Program Name	Award Type	Curr Comm Action	Date of CC of Action	Type of CC Action
NONE				

Module: Student Learning Outcomes

Question: Describe how course SLOs were assessed and how faculty were involved in the process in the prior year.

Answer: All faculty have been asked to assess SLOs for their respective courses. This is work in progress.

Question: Based on course SLO assessments in the prior year, what changes to the course were implemented? List the changes to each course that were made based on SLO assessments.

Answer: Currently we are in the process of assessing course SLOs. We plan to implement changes to the course once the assessment cycle is completed.

Question: Based on any of the following assessment methods:

- course SLO assessment;
 - analysis of course sequencing;
 - indirect assessment indicators such as state exams or employer surveys;
 - student success data such as retention, success rates, degrees/certificates awarded
- what changes to the program are planned or being implemented?

Answer: The assessment is on-going. Changes to the program will be implemented once the assessment cycle is completed.

Question: Will these planned changes based on Program SLO assessment necessitate a resource request?

Answer: No changes planned yet.

Question: How has faculty dialogue regarding assessment results and improvement plans been conducted and documented?

Answer: Right now faculty are working on assessment of their respective courses. Dialogue regarding assessment results and improvement plans can only take place when the assessment cycle is completed.

Module: Departmental Engagement

Question: What interdepartmental collaboration has your Discipline/Program/Service been involved in during the past six years?

Answer: Faculty in the Division meet once very month to discuss course scheduling, course prerequisites, curriculum development, supply budget, student classroom conduct policy etc. In all of these, there always are academic or administrative issues that require the collaboration of disciplines. Faculty and staff members work closely to implementing matters that require collaboration.

Question: What has your Division/ Department/ Program done since the last review to establish connections with schools, institutions, organizations, businesses, and corporations in the community?

Answer: The Division is actively engaged to expand the already running STEM programs. Five regular science faculty are recipients of the five-year NSF grant and are reaching out and collaborating with people in other institutions (academia, industry) who could assist our STEM scholars.

Module: Professional Development

Question: In order to keep current with new developments in your field, are there areas of unmet professional development needs among faculty in this program? If yes, please describe.

Answer: Yes. It would be very important to allocate funds for Professional Society membership and for faculty to enroll in short courses sponsored by professional organizations.

Question: For each regular full-time faculty member in your program, provide the committees in which each person is active, and list the 2 most significant professional development activities engaged in over the last 2 years. Activities may include workshop and conference attendance, courses taken, FTLA, Leadership Institute, etc. Committee roles may include chair, secretary, member, etc.

1 Faculty Name	4 First Prof Dev Activity	5 Year First PD Activity	6 Second Prof Dev Activity	7 Year Second PD Activity	
B Woldehaimanot	Academic Senate	Division Rep.			
	District Discipline Committee	Member			

Module: Facilities

Question: List and describe any current facilities challenges (e.g., location, quantity, quality) affecting your division/ department's ability to achieve its goals and meet instructional needs.

Answer: Affix a drop-down map holder on both of the Earth Science class room ceilings (MSA 302 and 307) - Secure drawers in the Earth Science laboratories to curb any theft (MSA 302 and 307) - Remodel the Earth Science Labs so that the upper half of all walls are freed from cabinets (MSA 302 and 307) - Add proper lighting to our mineral, fossil, and rock display cabinets for clear view (MSA 307); Also add light bulbs over the white board for clear viewing by students (MSA 302 and 307).

Question: Specify the division/ department's short term goals (1 year) for facilities improvement and functionality.

Answer: Affix a drop-down map holder on both of the Earth Science class room ceilings (MSA 302 and 307) - Secure drawers in the Earth Science laboratories to curb any theft (MSA 302 and 307) - Remodel the Earth Science Labs so that the upper half of all walls are freed from cabinets (MSA 302 and 307) - Add light bulbs over the white boards and to our mineral, fossil, and rock display cabinets for clear view (MSA 307)

Question: Specify the division/ department's long term goals (2-6 years) for facilities improvement and functionality.

Answer: Purchase a polarizing microscope for geology and earth science classes - Purchase thin sections of minerals and rocks for geology lab classes - Purchase geologic and topographic maps for student use in the labs.

Module: CTE Programs

Question: Does this Division offer any CTE programs? IF THE ANSWER IS 'NO' SKIP THE SECTION ABOUT CTE PROGRAMS, AND GO ON TO THE PLANNING SECTIONS.

Answer: No

Question: Review labor market demand. How does your program meet labor market demand? Cite specific examples and sources.

Answer:

Question: Advisory Board Membership. List the member name, company name, title and CTE program for each member.

Answer:

Question: Advisory Board Meetings. List the following information for each meeting held in the last year:

AB Name	Dates	Number Attendees	Minutes
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Question: What have been the major outcomes of your advisory board meetings? Of those outcomes, which have been acted upon, and what is your plan of action with regard to other outcomes discussed?

Answer:

Question: Describe and assess the evidence of students' attainment of intended learning outcomes, as measured by the employment and completion success of its students. [Ed Code 78016(a)(3)]

Answer:

Question: Is this program subject to approval/accreditation by specialized state, regional, or national accrediting agencies?

Answer:

Question: Indicate recommendation of the most recent accreditation evaluation of the program and corrective actions taken or planned. The most recent accreditation report and all additional pertinent documentation and explanations should be available on site for consultation.

Answer:

Question: Describe how you have assessed the appropriate improvements in student achievement and learning that have occurred as a result of the improved program practice.

Answer:

Question: Based on survey results, provide a brief analysis of employer satisfaction with program graduates.

Answer:

Question: Provide a brief analysis of student performance on licensure or board exams on first attempt for each program in the Division.

Answer:

Module: Completion

Question: Division Chair/ Program Manager: Fill out your name and date of final approval, save, and submit the program review.

Answer:

Question: List the people who participated in this Program Review.

Name	Role
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