**INSTITUTIONAL PROGRAM REVIEW 2011-12**

**Program Efficacy**

**Purpose of Institutional Program Review**

Welcome to the Program Efficacy phase of the San Bernardino Valley College Program Review process.  Program Review is a systematic process for evaluating programs and services annually.  The major goal of the Program Review Committee is to evaluate the effectiveness of programs, (comma not needed here) and to make informed decisions about budget and other campus priorities.

The Institutional Program Review Committee is authorized by the Academic Senate to develop and monitor the college Program Review process, receive unit plans, utilize assessments as needed to evaluate programs, recommend program status to the college president, identify the need for faculty and instructional equipment, and interface with other college committees to ensure institutional priorities are met.

The purpose of Program Review is to:

  Provide a full examination of how effectively programs and services are meeting departmental, divisional, and institutional goals

  Aid in short-range planning and decision-making

  Improve performance, services, and programs

  Contribute to long-range planning

  Contribute information and recommendations to other college processes, as appropriate

  Serve as the campus’ conduit for decision-making by forwarding information to or requesting information from appropriate committees

Our Program Review process is two-fold.  It includes an annual campus-wide needs assessment in the fall, (comma not needed here)and an in-depth review of each program every three years that we call the Program Efficacy phase.  Instructional programs are evaluated the year after content review, and every three years thereafter, and other programs are placed on a three-year cycle by the appropriate Vice President.

An team of three disinterested committee members will meet with you to carefully review and discuss your document.  You will receive detailed feedback regarding the degree to which your program is perceived to meet institutional goals.  The rubric that the team will use to evaluate your program is included with this e-mail

When you are writing your program evaluation, you may contact efficacy team assigned to review your department or your division representatives for feedback and input.  The list of readers is being sent to you with these forms as a separate attachment.

Completed documents should be sent to, Program Review Co-Chairs and your Division Dean by March 16th, 2012. *It is the writer’s responsibility to be sure the Committee receives the forms on time.*

In response to campus wide feedback that program review be a more interactive process, the committee piloted a new program efficacy process in Spring 2010 that included a review team who will interview and/or tour a program area during the efficacy process. Another campus concern focused on the duplication of information required for campus reports. The efficacy process now incorporates the Educational Master Plan One-Page Summary (EMP Summary) and strives to reduce duplication of information while maintaining a high quality efficacy process.

**Program Efficacy, 2011/2012**

Complete this cover sheet as the first page of your report.

**Program Being Evaluated**

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| --- |
| Geology/Oceanography |

**Name of Division**

|  |
| --- |
| Science and Health Science |

**Name of Person Preparing this Report                                                  Extension**

|  |
| --- |
| Todd Heibel |

**Name of Department Members Consulted**

|  |
| --- |
| Donald Buchanan (Adjunct – Geology) and Vanessa Engstrom (Full-Time – Geography)  |

**Name of Reviewers**

|  |
| --- |
| Kathy Kafela; Denise Knight\*; Edward Jones |

|  |  |  |
| --- | --- | --- |
| **Work Flow** | **Due Date** | **Date Submitted** |
| Date of initial meeting with department | 03/09/12 | 03/25/12 |
| Rough Draft submitted to Program Review Team | 03/07/12 | 03/25/12 |
| Report submitted to Program Review Team | 03/16/12 | 03/25/12 |
|  |  |  |

**Staffing**

List the number of full and part-time employees in your area.

|  |  |  |  |
| --- | --- | --- | --- |
| **Classification** | **Number Full-Time** | **Number Part-time, Contract** | **Number adjunct, short-term, hourly** |
| Managers | 1 (Science Dean) | 0 | 0 |
| Faculty | 0 (Faculty Chair in Geography) | 0 | 2 |
| Classified Staff | 0 | 0 | 0 |
| **Total** | 1 | 0 | 2 |

**Part I.  Questions Related to Strategic Initiative: Access**

Use the demographic data provided to describe how well you are providing access to your program by answering the questions below.

**Demographic Information**

| **Strategic Initiative** | **Institutional Expectations** |
| --- | --- |
| **Does Not Meet** | **Meets** |
| **Part I: Access** |
| Demographics | The program does not provide an appropriate analysis regarding identified differences in the program’s population compared to that of the general population  | The program provides an analysis of the demographic data and provides an interpretation in response to any identified variance.If warranted, discuss the plans or activities that are in place to recruit and retain underserved populations.  |
| Pattern of Service | The program’s pattern of service is not related to the needs of students. | The program provides evidence that the pattern of service or instruction meets student needs.If warranted, plans or activities are in place to meet a broader range of needs. |

**SBVC Student Demographics (3-year Averages)**

**2008-2011**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| **Gender** | **Campus Pct.** |
| Female | 58.5% |
| Male | 41.5% |
| \*Total |  |

*\*Totals do not include respondents who did not identify gender.*

|  |  |
| --- | --- |
| **Ethnicity** | **Campus Pct.** |
| Blank | 0.47% |
| Asian | 4.58% |
| Black | 19.03% |
| Filipino | 1.93% |
| Hispanic | 49.35% |
| Nat Amer | .99% |
| Other | 1.18% |
| Pac Islander | .75% |
| White | 20.55% |
| X-undeclared | 1.17% |
| Total | 100.00% |

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|  |  |
| --- | --- |
| **Disability** | **Campus Pct.** |
| Non-disabled  | 96.1% |
| Disabled | 3.9% |
| Total | 100% |

|  |  |
| --- | --- |
| **Average Age** | **Avg. Age Campus** |
|  | 28.8 |

 |

**Geology (3 year averages)**

| **Gender** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid | Declined to State  | 7 | .7 |
| F | 514 | 52.0 |
| M | 467 | 47.3 |
| Total | 988 | 100.0 |

| **Ethnicity** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid | Declined to State  | 339 | 34.3 |
| Asian | 20 | 2.0 |
| Black | 123 | 12.4 |
| Filipino | 5 | .5 |
| Hispanic | 303 | 30.7 |
| Native American | 10 | 1.0 |
| Other | 7 | .7 |
| Pacific Islander | 4 | .4 |
| Unknown | 27 | 2.7 |
| White | 150 | 15.2 |
| Total | 988 | 100.0 |

| **Disability** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid | Non-Disabled  | 972 | 98.4 |
| Disabled | 16 | 1.6 |
| Total | 988 | 100.0 |

| **Age** | **N** | **Minimum** | **Maximum** | **Average** |
| --- | --- | --- | --- | --- |
| Age | 988 | 15 | 70 | 25.89 |
| Valid N (listwise) | 988 |  |  |  |

**Oceanography (3 year averages)**

| **Gender** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid | Declined to State | 3 | .4 |
| F | 421 | 56.6 |
| M | 320 | 43.0 |
| Total | 744 | 100.0 |

| **Ethnicity** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid | Declined to State  | 206 | 27.7 |
| Asian | 17 | 2.3 |
| Black | 111 | 14.9 |
| Filipino | 6 | .8 |
| Hispanic | 254 | 34.1 |
| Native American | 5 | .7 |
| Other | 5 | .7 |
| Pacific Islander | 6 | .8 |
| Unknown | 15 | 2.0 |
| White | 119 | 16.0 |
| Total | 744 | 100.0 |

| **Disability** | **Frequency** | **Percent** |
| --- | --- | --- |
| Valid |  Non-Disabled | 730 | 98.1 |
| Disabled | 14 | 1.9 |
| Total | 744 | 100.0 |

| **Age** | **N** | **Minimum** | **Maximum** | **Mean** |
| --- | --- | --- | --- | --- |
| Age | 744 | 15 | 68 | 24.21 |
|  |  |  |  |  |

Does the program population reflect the college’s population?  Is this an issue of concern?  If not, why not? If so, what steps are you taking to address the issue?

|  |
| --- |
| Before addressing specific demographic data attributes, it must be noted that 37.8 percent of respondents within Geology and 30.4 percent of respondents within Oceanography declined to state, reported “other,” and reported “unknown” for ethnicity (compared to a campus total of only 2.7). This creates difficulty in assessing departmental service for specific ethnic groups.An additional prologue to this section must incorporate the lack of a full-time faculty member to properly recruit, expand, graduate, and transfer an acceptable number of traditionally under-represented groups. The Geology and Oceanography programs have been without a full-time faculty presence for more than five years.In terms of gender, females are somewhat under-represented and males are somewhat over-represented within Geology and Oceanography, as compared to the overall campus population. However, females outnumber males within both programs. Nonetheless, it remains a goal for both programs to continue to recruit, maintain, transfer, and graduate a larger population of women. As part of an overall STEM (science, technology, engineering, and mathematics) outreach effort, Geology and Oceanography endeavor to join other STEM programs on campus in the creation of grants, scholarships, tutoring and workshops, internships, career and transfer events and visits, field trips, guest speakers, and other events designed to attract women and other traditionally under-represented groups.The average age for both programs is slightly younger than the campus population and may reflect larger numbers of traditionally aged (18 through 23 years) college students who choose transfer-level physical science classes based upon prerequisites and perceived ease of success. In other words, many Geology and Oceanography students are not science majors and may perceive other physical sciences courses such as Astronomy, Biology, Chemistry, and Physics as beyond their comprehension. However, anecdotal evidence suggests that some Geology and Oceanography students develop a passion for the Earth and physical sciences. Some students continue to take subsequent Geology courses at SBVC and transfer institutions and a few have completed undergraduate and graduate degrees within the Geological Sciences.Disabled students are under-represented in both programs. This may reflect the centrality of field work to both sciences. Although speculative, some disabled students may assume that they are unable to participate in field work and site visits as a result of mobility issues. While it is true that some field sites are not amenable to students with mobility issues, disabled students are able to participate and enjoy the field in a meaningful way. For example, when hiring a bus (department funds selected site visits), the instructor will request a bus equipped with a chair lift if one or more students requires this type of access. Instructors will also give special instructions to students who have varying mobility and other needs. This is true for the classroom, as well as the field. In short, Geology and Oceanography endeavor to be as accommodating as possible for students with a variety of disabilities and needs.In terms of ethnic representation, it is important to reiterate that the data for Geology and Oceanography reflect a large number of “decline to state,” “other,” and “unknown” categories when compared to the entire campus population. Nonetheless, it appears that black, white, Hispanic, and Asian-Pacific Islander (including Filipino) populations are under-represented within the Geology and Oceanography programs. As with women, it is important for all STEM programs to continue to attract traditionally under-represented populations, including African-Americans, Hispanics, Native Americans, and Asian-Pacific Islanders. There are numerous opportunities to partner with other STEM programs on the SBVC campus, as well as four-year transfer institutions. Grant opportunities exist within the public and private realms, especially within the Geological Sciences. The Geology Department and Oceanography Program endeavor to increase on- and off-campus partnerships. Specifically the department and program will coordinate more fully with the SBVC grant director, other departments within the Science and Mathematics Divisions, and four-year transfer institutions in order to recruit, transfer, and graduate larger numbers of traditionally under-represented populations. Overall, there is an increased need for STEM majors and graduates throughout the United States and California, regardless of ethnicity. The SBVC Geology and Oceanography programs have a role to play in addressing the current shortage of STEM students.Hiring a full-time faculty member for these programs has the potential to dramatically improve outreach efforts for traditionally under-represented students. Although the programs continually strive to serve all students, a lack of a full-time faculty member significantly hampers these efforts. |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Female** | **Male** | **Age** | **Disable** | **Black** | **White** | **Hispanic** | **Nat Am** | **Asian-Pac Is** |
| **GEOL** | 52 | 47.3 | 25.9 | 1.6 | 12.4 | 15.2 | 30.7 | 1.0 | 2.9 |
|  |  |  |  |  |  |  |  |  |  |
| **OCEAN** | 56.6 | 43 | 24.2 | 1.9 | 14.9 | 16.0 | 34.1 | 0.7 | 3.9 |
|  |  |  |  |  |  |  |  |  |  |
| **CAMPUS** | 58.5 | 41.5 | 28.8 | 3.9 | 19.0 | 20.6 | 49.4 | 1.0 | 7.3 |

**Pattern of Service**

How does the pattern of service and/or instruction provided by your department serve the needs of the community? Include, as appropriate, hours of operation/pattern of scheduling, alternate delivery methods, weekend instruction/service.

|  |
| --- |
| **Geology Department:*** Monday and Wednesday, 11:00 AM to 12:20 PM (18-week semester),
* Tuesday, 1:00 to 3:50 PM (18-week semester),
* Wednesday, 6:00 to 8:50 PM (18-week semester), and
* Thursday, 6:00 to 8:50 PM (18-week semester).

**Oceanography Department:*** Monday and Wednesday, 9:30 AM to 10:50 AM (18-week semester),
* Tuesday, 6:00 to 8:50 PM (18-week semester), and
* Wednesday, 1:00 to 3:50 PM (18-week semester).

Occasionally, Geology and Oceanography courses are offered during the summer semester, as funding and faculty availability allow. Courses within both programs have been offered in a weekend format in past semesters, but this option has not been exercised in some time as a result of a lack of full-time faculty.As a result of a lack of full-time faculty and funding, Oceanography has not been offered since the spring 2011 semester. However, it will be offered during the summer 2012 semester.Both programs endeavor to offer lecture courses within online, hybrid, ITV (interactive television), and other DE (distributed education) formats. Introductory Geology and Oceanography lecture courses are now approved for DE delivery. Unfortunately, a lack of funding and full-time faculty have thus far precluded such ventures.During a typical fall or spring semester, introductory Geology and Oceanography lecture and laboratory courses are offered. However, Oceanography sections have not been offered since the spring 2011 semester. Both programs would like to offer a larger number and richer diversity of courses within a schedule that better suits morning, afternoon, evening, weekend, and online student populations. However, a decided lack of funding and lack of full-time faculty support have prevented program service expansion. |

**Part II: Questions Related to Strategic Initiative: Student Success**

| **Strategic Initiative** | **Institutional Expectations** |
| --- | --- |
| **Does Not Meet** | **Meets** |
| **Part II: Student Success - Rubric** |
| Data demonstrating achievement of instructional or service success | Program does not provide an adequate *analysis* of the data provided with respect to relevant program data. | Program provides an analysis of the data which indicates progress on departmental goals. If applicable, supplemental data is analyzed.  |
| Student Learning Outcomes and/or Student Achievement Outcomes | Program has not completed the first three-year SLO/SAO cycle. | Program has completed the first three-year SLO/SAO cycle. Discusses how SLOs were evaluated and has plans to continue SLO process. |

**Student Success Data: Geology**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 |
| Sections | 13 | 13 | 13 | 17 | 17 | 13 |
| % of online enrollment |   |   |   |   |   |   |
| Degrees awarded |   |   |   |   |   |   |
| Certificates awarded  |   |   |   |   |   |   |
|  |  |  |  |  |  |  |  |
| Data includes: SBVC, SOFF and SBBHS |  |  |  |

**Student Success Data: Oceanography**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 |
| Sections | 16 | 14 | 10 | 11 | 8 | 10 |
| % of online enrollment |   |   |   |   |   |   |
| Degrees awarded |   |   |   |   |   |   |
| Certificates awarded  |   |   |   |   |   |   |
|  |  |  |  |  |  |  |  |
| Data includes: SBVC, SOFF and SBBHS |  |  |   |

Provide an analysis of the data and narrative from the program’s EMP Summary and discuss what it reveals about your program.

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| **Geology Success, Retention, and Degree Data:**Year: G Succ:1 S Succ: 2 C Succ:3 G Retent:1 S Retent: 2 C Retent:3 Degr:06-07 76% 56.7% 61.63% 85% 73.4% 78.49% 007-08 71% 59.3% 61.82% 82% 75.5% 79.29% 008-09 63% 61.1% 63.02% 75% 75.4% 79.12% 009-10 75% 57.3% 61.20% 82% 72.5% 78.90% 010-11 74% 62.3% 63.92% 84% 76.5% 81.38% 0**Oceanography Success, and Retention Data:**Year: O Success:4 C Success:3 O Retention:4 C Retention:3 06-07 66% 61.63% 88% 78.49% 07-08 59% 61.82% 75% 79.29% 08-09 60% 63.02% 82% 79.12% 09-10 67% 61.20% 88% 78.90% 10-11 N/A 63.92% N/A 81.38% 1Success and retention rates for the Geology program.2Success and retention rates for selected Physical Science programs, including Astronomy, Chemistry, Geology, Physical Sciences, and Physics.3Success and retention rates for the SBVC campus, based on the spring semester.4Success and retention rates for the Oceanography program.Within the selected five-year period, success and retention for Geology and Oceanography programs have reflected and often exceeded those of the Science Division (selected Physical Science programs) and SBVC campus. Nonetheless, these data have the potential to improve such that our students will become more successful. In particular, the programs have identified the following trends and areas of concern and align with departmental goals (these generally align with goals, as identified within the Geology-Oceanography EMP document):Departmental Goal: Implement English and mathematics prerequisites for Geology and Oceanography courses:* In an ongoing effort to improve student success within Geology and Oceanography programs, curriculum is being revised to include basic skills prerequisites. Specifically, these programs shall include English prerequisites that assume reading, writing, and communication proficiency. In addition, mathematics proficiency is a key component.

 Departmental Goal: Increase student success and retention:* More variance than desired has occurred within both programs. Increased stability and overall increased rates remain goals for both programs. This can be achieved via establishment of prerequisites, development of grants to support tutoring and student success workshops, and improved advertisement through existing on- and off-campus activities.

Departmental Goal: Hire a full-time Geology-Oceanography faculty member:* An additional component that has the potential to increase student success and retention is to continue lobbying Program Review and related official processes in an effort to hire a full-time Geology-Geography faculty member. Alternatively, a full-time faculty member split between Geography and Geology-Oceanography programs would be beneficial. At present, there is no full-time faculty support for either program. Although our adjunct faculty represent industry experts with many years of teaching experience, they cannot guarantee long term stability and support for these programs. Equally, it is difficult (and unfair) to ask adjunct faculty to develop long-term strategies to ensure student success and retention, including advertising and recruitment. A full-time faculty member would be able to devote considerable time, thought, and action toward these endeavors.

Departmental Goal: Continue grant exploration and development to supplement declining budgets:* Using the summer 2010 San Bernardino County Workforce Investment Board (WIB) and American Recovery and Relief Act (ARRA) nine-week GIS/basic and career skills grant program as a model, additional Geology and Oceanography programs could be developed – perhaps using WIB, ARRA, NSF (National Science Foundation), and Perkins (related to career and technical education (CTE)) funding – that combine Earth science, cartographic, spatial, and computing skills with basic reading, mathematics, communication, English, and career skills.

Departmental Goal: Collaborate with other departments in order to develop interdisciplinary courses:* Learning communities (e.g. based on models including Tumaini, Puente, and Valley Bound), supplemental learning (e.g. tutoring and workshops), and interdisciplinary – including team-taught – courses could also be included in a multifaceted effort to improve student success and retention.

Departmental Goal: Collaborate with other community college and four-year Geological and Earth Science departments:* + Meet with faculty chairs and faculty members within Earth and Geological Science departments at area community colleges and four-year institutions in order to ensure appropriate curriculum development, improve transfer rates, and improve employability.
 |

**Supplemental Data**

Provide any additional information, such as job market indicators, standards in the field or licensure rates that would help the committee to better understand how your program contributes to the success of your students.

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| --- |
| **Job market related to their majors or certificates: (resource: CC Benefits):**Available career paths for those with AS, BS, and BA Degrees within the Geological Sciences may include (*source: Dickinson College Department of Geology: www.dickinson.edu/career/student/geology.html*):* Environmental consultant,
* Petroleum geologist,
* Hydrogeologist,
* Engineering geologist,
* Hydrologic technician,
* Mineralogist,
* Chemist,
* Gemologist,
* Environmental worker,
* Laboratory manager,
* Education (preschool, elementary school, secondary education, and higher education),
* Museum researcher,
* Soil engineer,
* Insurance researcher, and
* Attorney (environmental law).

**Standards in the field:**In accordance with the California Board for Geologists and Geophysicists: *Anyone who offers to practice or practices geology or geophysics for the public in California must be licensed as a geologist or geophysicist.***Licensure rates:**Specific licensure rates for Geologists and Geophysicists were difficult to obtain. However, according to the *Minutes of the Meeting of the* *Board for Geologists and Geophysicists and**Technical Advisory Committee (TAC)*, “As of Nov 6, 2005 there were 4,792 Professional Geologists (PG), 1,575 Certified Engineering Geologists (CEG), 821 Certified Hydrogeologists (CHG) and 229 Registered Geophysicists (RGP) with clear licenses” within the State of California. |

**Student Learning Outcomes and/or Student Achievement Outcomes (See** [**Strategic Initiative 5.1**](http://www.valleycollege.edu/~/media/Files/SBCCD/SBVC/president/College%20Planning%20Documents/StrategicInitiativesandBenchmarksMasterFormFinal.ashx).3**)**

**Has your program completed the initial SLO/SAO three-year cycle? If not, provide a timeline for completion.**

**Discuss the process used to evaluate SLOs/SAOs and what trends were identified. Describe program plans to continuously review and analyze SLO assessment outcome data to verify SLO progress.**

|  |
| --- |
|  Neither Geology nor Oceanography has completed an SLO assessment. However, both programs endeavor to complete these assessments according to the timeline table (please see table below). As curriculum is revised and additional Geology courses are offered, SLO assessments will be completed. As it stands, most courses lacking an SLO assessment have not been offered in several semesters. This (obviously) prevents assessments from occurring. The cycle of continuous SLO updates and assessment would be facilitated by hiring a full-time faculty member for these programs. Although adjunct faculty have been diligently collecting SLO assessment data (to be published soon for selected GEOL and OCEAN sections), analysis and publication of these data are difficult to conduct without full-time faculty guidance and leadership.As evidence of continued investment in SLOs/SAOs, GEOL 101 and OCEAN 101 will incorporate the following SLO framework and assessment rubric:GEOL 101 SLO and Assessment:SLO One:Students will demonstrate an understanding of Earth’s physical system (atmosphere, biosphere, hydrosphere, and geosphere) interrelationship through the hydrologic cycle.Evaluation: Students label a hydrologic cycle diagram at the beginning of the course (known knowledge… from scratch), on quiz one, on exam one, and create and label on exam two (total of four evaluations). This is an iterative process, moving from background knowledge to memorization through critical interpretation. Instructor does not provide a list of nomenclature to the student initially.Emphases: a) students improve their understanding of the interrelationship of Earth systems, and b) students learn appropriate disciplinary nomenclature.“Good enough” threshold: Seven out of ten points (70 percent).SLO Two:Students will learn the three major rock types through development of the major processes of Earth’s rock cycle (after learning the hydrologic cycle).Evaluation: Students label a rock cycle diagram on a quiz, followed by an exam question. This is an iterative process.Emphases: a) students improve their understanding of the interrelationship of Earth systems, and b) students learn appropriate disciplinary nomenclature.“Good enough” threshold: 14 out of 20 points (70 percent).OCEAN 101 SLO and Assessment:SLO One:Students will demonstrate knowledge of Earth’s continents that define the oceans, seas, and major islands.Evaluation: Students label the continents and oceans on a blank map of the world. This is done at the beginning of the semester (blind test) and on successive quizzes. On each quiz, students must know an increasing number of features: first, continents and oceans, and later seas and islands. Instructor provides a list of features to the student.Emphases: a) students improve general geographic knowledge, and b) students apply general geographic knowledge to major ocean currents and related oceanographic features.“Good enough” threshold: Minimum percentage of 70.SLO Two:Students develop an understanding of plate tectonics in relationship to Earth’s physical processes by identifying Earth’s major tectonic plates and plate boundaries.Evaluation: Students label tectonic plates and plate boundary types, including ocean ridge and trench features, on a blank tectonic plate and plate boundary outline map of the world.Emphases: a) students improve general knowledge of the relationship between Earth’s internal and external geomorphic processes, and b) students understand specific relationships between tectonic features and oceanographic processes.“Good enough” threshold: Minimum percentage of 70.As soon as GEOL course curriculum, SLO questions, and SLO assessment has been updated, the same will be done for the GEOL AS degree program. At this time, the OCEAN program incorporates neither degree nor certificate program.Although the present cadre of adjunct GEOL and OCEAN faculty (in concert with the faculty chair and division dean) endeavor to monitor, evaluate, and update course- and program-level SLOs (in an effort to improve the learning environment for students), these crucial processes would be greatly improved under the leadership of a full-time faculty.  |

**SLO Course and Program Completion Timeline Table:**

|  |  |  |
| --- | --- | --- |
| **Course:** | **SLO Assessment Completed?** | **Plan to Complete by:** |
| GEOL 101: Introduction to Physical Geology Lecture | No | Spring 2012 |
| GEOL 111: Introduction to Physical Geology Laboratory | No | Spring 2012 |
| GEOL 112: Historical Geology | No | When curriculum is revised and next offered |
| GEOL 122: Environmental Geology | No | Spring 2012 |
| GEOL 170X4: Geologic History of the Great Basin | No | When curriculum is revised and next offered (note that this course will be “leveled” to reflect necessary Title V changes) |
| GEOL 200: Rocks and Rock Minerals | No | When curriculum is revised and next offered (note that this course may be deleted) |
| GEOL 201: Mineralogy | No | When curriculum is revised and next offered |
| GEOL 222: Independent Study in Geology | No | When curriculum is revised and next offered |
| GEOL 250: Geology of California | No | When curriculum is revised and next offered |
| GEOL 251: Geology of the National Parks and Monuments | No | When curriculum is revised and next offered (possibly Fall 2012) |
| GEOL 260: Introduction to Field Geology | No | When curriculum is revised and next offered |
| GEOL 270X4: Geology of the Eastern Sierra Nevada | No | When curriculum is revised and next offered (note that this course will be “leveled” to reflect necessary Title V changes) |
| OCEAN 101: Elements of Oceanography Lecture | No | Summer 2012 |
| OCEAN 111: Elements of Oceanography Laboratory | No | Summer 2012 |

**Part III. Questions Related to Strategic Initiative: Institutional Effectiveness**

| **Strategic Initiative** | **Institutional Expectations** |
| --- | --- |
| **Does Not Meet** | **Meets** |
| **Part III: Institutional Effectiveness - Rubric** |
| Mission and Purpose | The program does not have a mission, or it does not clearly link with the institutional mission. | The program has a mission, and it links clearly with the institutional mission. |
| Productivity | The data does not show an acceptable level of productivity for the program, or the issue of productivity is not adequately addressed. | The data shows the program is productive at an acceptable level. |
| Relevance, Currency, Articulation | The program does not provide evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate. | The program provides evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program. Appropriate courses have been articulated or (?) transfer with UC/CSU or plans are in place to articulate appropriate courses. |

**Mission and Purpose:**

*SBVC Mission: San Bernardino Valley College provides quality education and services that support a diverse community of learners.*

What is the mission statement of the program?

The Geology-Oceanography Department provides quality education to students interested in fulfilling general education (GE) requirements in physical and environmental sciences, specifically mathematics, engineering, environmental studies/sciences, biology (paleontology and history of life), (geo)chemistry, and hydrology.

Specifically, the Department prepares students for careers in the fields of geology, oceanography, geographic information systems (GIS), education, cartography, surveying, civil engineering, petroleum exploration and delivery, hydrology and hydrogeology, environmental studies, and other positions that demand knowledge and interpretation of internal and external geo-physical processes. In addition, Geology-Oceanography courses allow students to make sense of the physical world around them. This increases their level of critical thinking and problem solving for a variety of applications, related and non-related to geological processes.

How does this purpose relate to the college mission?

|  |
| --- |
| The mission of the College is to provide quality education to a diverse community of learners and is consistent with the purpose and mission of the Geology-Oceanography Department. The Department serves a diverse community of learners, as evidenced in its demographic data, although ongoing efforts seek to increase service to diverse populations. In addition, the Department adheres to the college vision statement by creating “informed, responsible, and active members of society” and value statement where “students become self-sufficient learners and contributing members of society.” |

**Productivity**

**Productivity Data Geology**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  FTES |  |  |  |  |  |  |  |
| 04-05 | 16.96 |  |  |  |  |  |  |  |
| 05-06 | 13.20 |

|  |
| --- |
|  |

 |  |  |  |  |  |  |
| 06-07 | 12.20 |  |  |  |  |  |  |  |
| 07-08 | 14.67 |  |  |  |  |  |  |  |
| 08-09 | 20.20 |  |  |  |  |  |  |  |
| 09-10 | 20.10 |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |
|   | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 |  |
| Duplicated Enrollment | 147 | 102 | 98 | 124 | 186 | 150 |  |
| FTEF | 1.56 | 1.48 | 1.08 | 1.38 | 1.88 | 1.08 |  |
| WSCH per FTEF | 326 | 268 | 339 | 319 | 322 | 558 |  |
|  |  |  |  |  |  |  |  |  |

**Productivity Data: Oceanography**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  FTES |  |  |  |  |  |  |  |
| 04-05 | 19.77 |  |
| 05-06 | 17.50 |
| 06-07 | 14.30 |
| 07-08 | 12.50 |
| 08-09 | 14.30 |
| 09-10 | 22.50 |
|  |  |
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|  |  |  |  |  |  |  |  |  |
|   | 04-05 | 05-06 | 06-07 | 07-08 | 08-09 | 09-10 |  |
| Duplicated Enrollment | 136 | 125 | 102 | 95 | 118 | 156 |  |
| FTEF | 1.62 | 1.62 | 1.08 | 1.28 | 1.08 | 1.08 |  |
| WSCH per FTEF | 366 | 324 | 397 | 293 | 397 | 625 |  |

Provide additional analysis and explanation of the productivity data and narrative in the EMP Summary, if needed. Explain any unique aspects of the program that impact productivity data for example; Federal Guidelines, Perkins, number of workstations, licenses etc…

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| **Geology Productivity:**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **04-05** | **05-06** | **06-07** | **07-08** | **08-09** | **09-10** | **10-11** |
| **FTES** | 16.96 | 13.20 | 12.20 | 14.67 | 20.20 | 20.10 | 26.43 |
| **Enrollment** | 147 | 102 | 98 | 124 | 186 | 150 | 257 |
| **FTEF** | 1.56 | 1.48 | 1.08 | 1.38 | 1.88 | 1.08 | 1.29 |
| **Efficiency** | 326 | 268 | 339 | 319 | 322 | 558 | N/A |

**Oceanography Productivity:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **04-05** | **05-06** | **06-07** | **07-08** | **08-09** | **09-10** | **10-11** |
| **FTES** | 19.77 | 17.50 | 14.30 | 12.50 | 14.30 | 22.50 | N/A |
| **Enrollment** | 136 | 125 | 102 | 95 | 118 | 156 | N/A |
| **FTEF** | 1.62 | 1.62 | 1.08 | 1.28 | 1.08 | 1.08 | 1.08 |
| **Efficiency** | 366 | 324 | 397 | 293 | 397 | 625 | N/A |

**College Productivity:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **04-05** | **05-06** | **06-07** | **07-08** | **08-09** | **09-10** | **10-11** |
| **FTES** | 8,987.05 | 9,344.46 | 8,957.59 | 10,090.64 | 11,249.45 | 10,250.28 | 10,314.97 |
| **Enrollment** | 19,394 | 19,477 | 19,420 | 20,802 | 22,494 | 21,305 | 19,169 |

Both programs generally reflect overall college trends in FTES and enrollment, as well as changing student and workforce demands. As budgets and class offerings have generally declined in recent years, the Geology and Oceanography programs have grown more efficient. This is partially the result of a slightly higher class cap on both introductory lectures and labs (from 35 to 40 in lecture and 25 to 30 in lab), as well as a higher student persistence rate (fewer students dropping through the course of a semester. This has become more apparent within the context of fewer physical science course options available to students during a climate of budget austerity.In tandem with workforce and job market demands, student awareness of environmental, energy security, water supply and wastewater treatment, and supply and demand for fuel and non-fuel mineral resource concerns has increased. Increasingly, students are seeking answers to these questions. They realize that Geology and Oceanography can provide not only answers but also solid transfer (to four-year institutions) and career skills. High-demand careers will increasingly incorporate environmental sciences and engineering, to which Geology and Oceanography will contribute. The California, national, and global scenarios all point toward increasing demand on finite resources, including metallic and non-metallic ores, fuel and non-fuel resources, and clean water supplies. A background in Geology, Oceanography, Earth, and Environmental Sciences will greatly benefit students as they endeavor to transfer to four-year institutions and enter the 21st-century job market.Program growth and further advertisement (to students) of the benefits of a Geology-Oceanography skill set would be greatly improved with the addition of a full-time faculty member. This professional could have greater freedom and time to devote toward enhancement of student recruitment, enrollment, retention, success, transfer rates, degree attainment, and job market/career tracking (e.g. a full-time faculty member could devote additional resources towards monitoring students who have successfully moved into Geology, Earth Science, Oceanography, Environmental, Engineering, Water, and related careers). |

**Relevance and Currency, Articulation of Curriculum**

If applicable to your area, describe your curriculum by answering the following questions.

The Content Review Summary from Curricunet indicates the program’s current curriculum status. If curriculum is out of date, explain the circumstances surrounding the error and plans to remedy the discrepancy.

|  |
| --- |
| **Science** |
|         **Geology** |
|   | **Course** | **Status** | **Last Content Review** | **Next Review Date** |
|   | GEOL101 Introduction to Physical Geology | Active | 10/26/2009 | 10/26/2015 |
|   | GEOL111 Physical Geology Laboratory | Active | 10/26/2009 | 10/26/2015 |
|   | GEOL122 Environmental Geology | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL170X4 Geological History of Great Basin | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL200 Rocks and Rock Minerals | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL201 Mineralogy | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL222 Independent Study in Geology | Active | 04/15/2000 | 04/15/2006 |
|   | GEOL250 Geology of California | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL251 Geology of National Parks and Monuments | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL260 Introduction to Field Geology | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL270X2 Geology of the Eastern Sierra Nevada | Active | 11/15/2001 | 11/15/2007 |
|   | GEOL101 Introduction to Physical Geology Lecture | Pending | 10/26/2009 | 10/26/2015 |
|   | GEOL112 Historical Geology | Pending | 11/15/2007 | 11/15/2013 |
|   | GEOL122 Environmental Geology | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL201 Mineralogy | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL250 Geology of California | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL251 Geology of National Parks and Monuments | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL260 Introduction to Field Geology | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL270X4 Geology of the Eastern Sierra Nevada | Pending | 11/15/2001 | 11/15/2007 |
|   | GEOL100 Introduction to Physical Geology | Launched | 10/26/2009 | 10/26/2015 |
|   | GEOL111 Introduction to Physical Geology Laboratory | Launched | 10/26/2009 | 10/26/2015 |
|   | GEOL170X4 Geological History of the Great Basin Province | Launched | 11/15/2001 | 11/15/2007 |
|   | GEOL200 Rocks and Rock Minerals | Launched | 11/15/2001 | 11/15/2007 |
|   | GEOL100 Physical Geology | Historical |  |  |
|   | GEOL100 Physical Geology | Historical |  |  |
|   | GEOL101 Introduction to Physical Geology | Historical |  |  |
|   | GEOL111 Investigations in Physical Geology |  |  |  |

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| --- |
| **Science** |
|         **Oceanography** |
|   | **Course** | **Status** | **Last Content Review** | **Next Review Date** |
|   | OCEAN101 Elements of Oceanography | Active | 12/07/2009 | 12/07/2015 |
|   | OCEAN111 Elements of Oceanography Laboratory | Active | 12/07/2009 | 12/07/2015 |
|   | OCEAN100 Introduction to Oceanography | Historical |  |  |
|   | OCEAN100 Introduction to Oceanography | Historical |  |  |
|   | OCEAN101 Elements of Oceanography | Historical |  |  |
|   | OCEAN111 Investigations in Oceanography | Historical |  |  |

As the curriculum content review report above indicates, most of the courses within the Geology Department are out of date. At present, the following Geology and Oceanography courses are up to date:

* GEOL 101: Introduction to Physical Geology Lecture,
* GEOL 111: Introduction to Physical Geology Laboratory,
* OCEAN 101: Elements of Oceanography (lecture), and
* OCEAN 111: Elements of Oceanography Laboratory.

In discussions with department faculty, Curriculum Committee, and Science Division Dean, the GEOL 100 and OCEAN 100 courses were deleted. These four-unit, lecture-laboratory courses formerly combined GEOL 101 and 111 and OCEAN 101 and 111.

The Geology Department is keenly aware of the large number of out-of-compliance courses and is taking the following steps to rectify the situation:

* Two full-time SBVC Geography Department faculty attended and participated in the October 2010 Southern California Discipline Interest Group (DIG) meeting in Orange, California. Geography faculty attended, as there are no full-time Geology-Oceanography faculty to represent the program (also, the faculty chair for Geography, Geographic Information Systems (GIS), Geology, and Oceanography at SBVC is a full-time Geography faculty member). The purpose of this meeting was to develop a core set of Geology (and related) courses at the community college level that were guaranteed to transfer to (and be accepted by) California State University campuses (where Geological Sciences were offered as a major degree program). In addition to courses that were guaranteed to transfer, a Transfer Model Curriculum (TMC) for the Geological Sciences Associate Degree was developed. These actions occurred within the context of SB 1440 (the Student Transfer Achievement Reform Act). “This new law requires community colleges to grant an associate degree for transfer to a student once a student has met specified general education and major requirements for the degree. Upon completion of the associate degree, the student is eligible for transfer with junior standing into the California State University (CSU) system” (<http://www.sb1440.org>, accessed on 25 March 2012).
* Based on a final (TCM) document agreed upon by both California Community Colleges and University of California systems, the SBVC Geology Department is prioritizing curricular review for a core set of courses as a means of thoroughly revising the SBVC Geology AS Degree program. This will allow SBVC students to not only complete the SBVC GEOL AS Degree but also successfully transfer into California State Universities where this BA/BS Degree is offered.
	+ In addition to the DIG-TCM participation, the SBVC Geology Department is presently in dialogue with two major transfer institutions, California State University-San Bernardino and University of California-Riverside, in order to ensure the integrity and transferability of core SBVC Geology courses (as well as the Geology AS Degree program). Specifically, Geology faculty at both institutions are reviewing and making comments on a core set of SBVC Geology curriculum. Recommendations will be included in final submissions to the SBVC Curriculum Committee.
	+ At the local level, the SBVC Geology Department is in frequent contact with the SBVC Articulation Officer, SBVC Curriculum Committee, and a diversity of full-time SBVC Geography faculty, and adjunct SBVC Geology and Oceanography faculty.
	+ The following table provides a timeline for bringing Geology (and Oceanography) curriculum up to date and into compliance so that SBVC students can successfully complete the Geology associate degree, transfer into a variety of four-year institutions, and embark upon meaningful Geology, Earth Science, Environmental Science, Hydrology (water), Petroleum (and other energy sources), Engineering, and related careers:

|  |  |  |
| --- | --- | --- |
| **Course:** | **Up-to-Date/In Compliance:** | **Plan/Goal and Notes:** |
| GEOL101 Introduction to Physical Geology | Yes | Resubmit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL111 Physical Geology Laboratory | Yes | Resubmit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL 112 Historical Geology | No | Submit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL122 Environmental Geology | No | Submit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL170X4 Geological History of Great Basin | No | Submit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). As a result of Title V changes, this “X4” course will be “leveled” and rewritten as four separate courses (e.g. GEOL 170A, GEOL 170B, GEOL 170C, and GEOL 170D). |
| GEOL200 Rocks and Rock Minerals | No | Submit course deletion to the Curriculum Committee during the Spring 2012 Semester (course no longer articulates with the CSU and UC systems). |
| GEOL201 Mineralogy | No | Submit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL222 Independent Study in Geology | No | Submit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL250 Geology of California | No | Submit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL251 Geology of National Parks and Monuments | No | Submit updated curriculum to the Curriculum Committee during the Spring 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL260 Introduction to Field Geology | No | Submit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| GEOL270X4 Geology of the Eastern Sierra Nevada | No | Submit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). As a result of Title V changes, this “X4” course will be “leveled” and rewritten as four separate courses (e.g. GEOL 270A, GEOL 270B, GEOL 270C, and GEOL 270D). |
| OCEAN101 Elements of Oceanography | Yes | Resubmit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |
| OCEAN111 Elements of Oceanography Laboratory | Yes | Resubmit updated curriculum to the Curriculum Committee during the Fall 2012 Semester (pending committee approval, will be published in the 2013-14 college catalogue). |

Articulation and Transfer

|  |  |  |
| --- | --- | --- |
| List Courses above 100 where articulation or transfer is **not** occurring | **With CSU** | **With UC** |
| GEOL170X4 Geological History of Great Basin | Yes | No |
| GEOL200 Rocks and Rock Minerals | Yes | Limited |
| GEOL201 Mineralogy | Yes | Limited |
| GEOL251 Geology of National Parks and Monuments | Yes | No |
| GEOL270X4 Geology of the Eastern Sierra Nevada | Yes | No |

Describe your plans to make course qualify for articulation or transfer.

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| --- |
| Fortunately, all SBVC Geology courses currently articulate with and transfer to most California State University institutions where Geological Sciences are offered as a BS or BA degree program. Nonetheless, the SBVC Geology Department endeavors to ensure the rigor, timeliness, and transferability of all of its Geology courses. As a result of its recent participation in the DIG-TCM process (Discipline Input Group-Transfer Curriculum Model) and continued cooperation and dialogue with the SBVC Articulation Officer and Curriculum Committee, the SBVC Geology Department will continue to facilitate the articulation and transfer process for students. In addition, the SBVC Geology Department is in direct dialogue with Geology faculty at CSU-San Bernardino and UC-Riverside campuses in order to facilitate articulation and transferability of most SBVC Geology and Oceanography courses.Unfortunately, a select group of SBVC Geology courses transfer to only a limited extent or not at all to University of California institutions where Geology Sciences are offered as a BS or BA degree program. The current DIG-TCM process, although designed primarily for California Community College-to-California State University transfer, requests that the University of California accept selected community college Geology courses within a lower-division transfer pattern.The SBVC GEOL 201: Mineralogy course has the greatest promise to fully transfer as a lower-division Geology course into most CSU and UC campuses. Faculty at these institutions are currently reviewing and making recommendations to the GEOL 201 course curriculum. Because it no longer reflects the current state of the Geological Sciences, the GEOL 200: Rocks and Rock Minerals course will be deleted (and some elements of GEOL 200 will be incorporated into the revised GEOL 201 curriculum).It is uncertain as to whether the GEOL 170X4, 251, and 270X4 courses will be accepted for transfer by the UC system other than elective credit. Although 170X4 and 270X4 courses will be “leveled” (e.g. 170A, 170B, etc.) and 251 updated, many of these specialized courses are found within the upper-division course offerings within most UC (and even many CSU) campuses. Nonetheless, field-based courses will continue to be recommended for all students who wish to earn Geology AS degrees and transfer into four-year Geology programs. However, the SBVC catalogue (and Geology AS degree) will contain the caveat that not all SBVC GEOL courses will fully articulate with or transfer to the UC system. |

**Currency**

Follow the link below and review the last college catalog data.
http://www.valleycollege.edu/academic-career-programs/college-catalog.aspx

Is the information given accurate? Which courses are no longer being offered? (Include Course # and Title of the Course). If not, how does the program plan to remedy the discrepancy?

|  |
| --- |
| While all information within the current 2011-12 catalogue and online is accurate, several updates are planned so that SBVC Geology and Oceanography students can continue to transfer to CSU, UC, and other public and private four-year institutions. |
| In addition to updating Geology and Oceanography Department course curriculum, the SBVC Geology AS Degree will be modified to the following (most likely for publication in the 2013-14 SBVC Catalogue):Required Courses to Complete the SBVC Geology AS Degree:* CHEM 150: General Chemistry I (5 units lec-lab and same as the 11-12 catalogue)
* CHEM 151: General Chemistry II (5 units lec-lab and same as the 11-12 catalogue)
* GEOL 101: Introduction to Physical Geology (3 units lec and same as the 11-12 catalogue)
* GEOL 111: Physical Geology Laboratory (1 unit lab and same as the 11-12 catalogue)
* GEOL 112: Historical Geology (4 units lec-lab and modified from the 11-12 catalogue)
* MATH 250: Single Variable Calculus I (4 units lec and same as the 11-12 catalogue)
* MATH 251: Single Variable Calculus II (4 units lec and same as the 11-12 catalogue)
* PHYSIC 200: Physics I (6 units lec-lab and modified from the 11-12 catalogue) – students may be given the option to take PHYSIC 150A: General Physics for the Life Sciences I (5 units lec-lab)
* PHYSIC 201: Physics II (6 units lec-lab and modified from the 11-12 catalogue) – students may be given the option to take PHYSIC 150B: General Physics for the Life Sciences II (5 units lec-lab)

Total Required Units: 36-38Recommended Courses to Complete the SBVC Geology AS Degree:* BIOL 100: General Biology (4 units lec-lab and modified from the 11-12 catalogue)
* GEOL 122: Environmental Geology (3 units lec and same as the 11-12 catalogue)
* GEOL 170A: Geologic History of the Great Basin (1 unit lec-lab and modified from the 11-12 catalogue)
* GEOL 201: Mineralogy (4 units lec-lab and modified from the 11-12 catalogue)
* GEOL 250: Geology of California (3 units lec and same as the 11-12 catalogue)
* GEOL 251: Geology of the National Parks and Monuments (3 units lec and same as the 11-12 catalogue)
* GEOL 270A: Geology of the Eastern Sierra Nevada (1 unit lec-lab and modified with the 11-12 catalogue)

Total Recommended Units: 19This proposed, revised SBVC Geology AS Degree program is based upon the recently approved DIG-TCM Geology AS Degree and should assist SBVC students interested in pursuing AS, BA/BS, graduate degrees, and careers within the broadly defined Geological Sciences. |

**Part IV. Planning**

| **Strategic Initiative** | **Institutional Expectations** |
| --- | --- |
| **Does Not Meet** | **Meets** |
| **Part IV: Planning - Rubric** |
| Trends | The program does not identify major trends, or the plans are not supported by the data and information provided. | The program describes major trends in the field. Program addresses how trends will affect enrollment and planning. Provide data or research from the field for support.  |
| Accomplishments | The program does not incorporate accomplishments and strengths into planning. | The program incorporates substantial accomplishments and strengths into planning. |
| Challenges | The program does not incorporate weaknesses and challenges into planning. | The program incorporates weaknesses and challenges into planning. |

What are the trends, in the field or discipline, impacting your student enrollment/service utilization? How will these trends impact program planning?

|  |
| --- |
| Current trends within the Earth, Environmental, Energy, Engineering, and Hydrologic Sciences, including Geology and Oceanography, include:* Environmental aspects related to global climate change and resource scarcity, specifically as it pertains to urbanization, air quality, and water use within the Inland Empire,
* Greater knowledge of geologic hazards within the Inland Empire region, including earthquakes, debris flows, and landslides,
* Inclusion of greater numbers of previously underrepresented populations, specifically through outreach, workshop, guest speaker, and job fair events,
* Land and resource management programs, specifically through partnerships with US Forest Service, San Bernardino County Museum, and other public and private entities within the Inland Empire,
* Depending on state and federal mandates, the demand for Earth Science school teachers (K-12) may increase,
* Energy security, including exploration and production of traditional fossil fuels (including on- and off-shore drilling for oil and natural gas, hydraulic fracturing (more commonly known as “fracking”), and above- and under-ground mining for coal),
* Energy security, including uranium exploration and production of nuclear fuels,
* Energy security, including procuring raw materials for and locating solar and wind electrical generation facilities,
* Exploration and production of Rare Earth minerals (including many used within the modern telecommunications and hybrid/electric vehicle industries),
* Surface and groundwater and wastewater supply and treatment facilities and techniques, and
* Continued site environmental mediation and cleanup efforts at the local, state, national, and international levels.

In addition to remaining abreast of the above local, state, national, and international trends, faculty and students will maintain curricular and pedagogical currency through the following means:* Attendance and presentations at Geological Society of America (GSA) conferences, California Geological Survey (CGS) conferences, San Bernardino County Museum, and other national, regional, state, and local conferences, seminars, workshops, rock and mineral shows, and field excursions,
* Monitoring four-year college and university catalogues,
* Monitoring the “assist.org” website,
* Attending and participating in future DIG-TCM (Discipline Input Group-Transfer Model Curriculum) meetings and discussions,
* Continued collaboration with the SBVC and other four-year college and university Geological Sciences faculty and articulation officers, and
* Subscription to a variety of scholarly and industry journals and other publications.

An optimal level of service will be maintained by:* Hiring the most competent and student-friendly faculty,
* Collaboration with Science, Math, and other ancillary Divisions and Departments,
* Collaboration with DSPS, Counseling, Financial Aid, Admissions and Records, and other ancillary services,
* Participation in campus outreach events, including Science and Math Day, Celebrating Women in Science, Super Saturday, and other events,
* Continued support and mentorship of students through the Geology Club, field excursions, scholarships, successful transfer to four-year institutions, and career-based internships, and
* Continued participation in Professional Development and other developmental activities.
 |

Accomplishments and Strengths

Referencing the narratives in the EMP Summary, provide any additional data or new information regarding the accomplishments of the program, if applicable. In what way does your planning address accomplishments and strengths in the program?

|  |
| --- |
| To paraphrase the EMP Summary document, the greatest accomplishments and strengths of the Geology-Oceanography Program include:* Continued (albeit belated) updates of curriculum, SLO questions, and SLO assessment for individual courses and degree program,
* Active participation in many campus outreach activities (e.g. “Super Saturday,” “Science and Math Day,” “Celebrating Women in Science and Math,” etc.),
* Several years’ participation in the Annual California Coastal Commission “Coastal Cleanup Day” event,
* Successful recruitment, advertising, retention, and related support offered through the Geology Club,
* Geology Club-faculty-student collaborations on creating and hosting numerous off-campus field trips during each academic year,
* Maintenance of linkages with former students who have been able to “give back” to SBVC by offering workshops and providing guest lectures,
* During the past three academic years, offering courses in addition to traditional introductory courses, including GEOL 122: Environmental Geology, GEOL 250: Geology of California, and GEOL 251: Geology of the National Parks and Monuments, and
* Successfully relocating from the former Chemistry and Physical Science Buildings into the new (as of the fall 2011 semester) Physical Sciences Building during the summer of 2011.

Building upon the various accomplishments and strengths of the Geology-Oceanography program, the following plan is proposed:One-year plan:* Partnership with the US Forest Service for students, families, and other community members.
* Continued student recruitment through the SBVC Geology Club, as well as similar student organizations on other community college and four-year campuses.
* Continued participation in “Science and Math Day,” “Women in Science,” and “Super Saturday” on-campus activities.
* More regularly offering OCEAN 101 and 111 (in light of budgetary constraints, perhaps offering these courses at least once per academic year).

Three-year plan:* Hiring a full-time, tenure-track faculty member (discussed more fully within the “Challenges” section).
* Regularly offering (at least once per academic year) an expanded lineup of courses, including: GEOL 101, 111, 112, 122, and 201.
* Regularly offering (at least once every other academic year) an expanded lineup of courses, including: GEOL 170 (probably leveled as 170A, 170B, etc.), 250, 251, and 270 (probably leveled as 270A, 270B, etc.).
* Partnership with the American Meteorological Service (AMS) within the “Minority Scholarship” and online “Weather Studies” and “Oceanography” programs.
* Partnership with the US Geological Survey (USGS) National Associated of Geology Teachers (NAGT) and other local, state, and federal (and non-governmental) institutions to promote recruitment, internships, scholarships, and transfer of additional (and traditional) underrepresented students.
* Expanding outreach to include regional high school and adult education students.

Five-year plan:* Writing a grant to fund minority/underrepresented (and other) students to transfer into four-year Geology, Oceanography, and Environmental Studies/Sciences programs.
* Funding SBVC Geology student attendance and presentation at local, state, national, and international professional conferences.
* Hosting summer field camps for middle- and high school students interesting in the Geological Sciences (as broadly defined) and co-taught/led by SBVC community college students.
* Continue to develop and expand the Geology-Oceanography program courses, certificates, degrees, and budget under the leadership of one or more full-time Geology-Oceanography faculty.
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Challenges

Referencing the narratives in the EMP Summary, provide any additional data or new information regarding planning for the program. In what way does your planning address trends and weaknesses in the program?

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| The greatest barrier to the growth and overall stability of the Geology-Oceanography is the lack of a full-time, tenure-track faculty member. This Department presently relies upon three adjunct faculty members. The Geology-Oceanography Department has been made aware that it must increase FTES and faculty load such that it warrants a strong position (ranking) within the Program Review faculty Needs Assessment. However, increasing FTES and faculty load remains extremely difficult without a full-time, tenure-track content expert. This Department is concerned that, lacking a full-time faculty member, it will: not grow beyond its present configuration; not be able to offer students an AS degree; not fully encourage women, students of color, and other underrepresented populations to enter into the Earth Sciences; and not positively contribute to FTES growth within the Science Division, College, and District.At this time, GEOL 112, 170, 201, 260, and 270 courses have not been offered for several years (and 250 and 251 have been offered only once during the past three academic years). Because the three- and five-year plans include hiring a full-time, tenure-track faculty member and consequent expansion of the program, these courses have the potential to be offered within this timeframe. As mentioned, these courses are in the present content review cycle and will be significantly updated to ensure currency and articulation with four-year institutions.Students are presently unable to earn an AS degree in Geology, as GEOL 112 and 201 are not currently offered. However, three- and five-year plans have the potential to address this shortcoming. In addition, the Geology AS Degree (and associated courses) is currently being rewritten to reflect current content, curricular, transfer, and career demands.With the addition of a full-time Geology-Oceanography faculty member:* Additional courses, certificates, and degrees could be developed,
* The timeliness and robustness of course and degree curriculum updates could be improved,
* The timeliness and robustness of course and degree SLO questions and assessments could be improved, and
* The program could continue to grow and prosper, therefore meeting increased workplace (career) demands (especially within the STEM – science, technology, engineering, and mathematics – fields), improve upon recruitment of traditionally underrepresented groups, and greater integration with other disciplines on the SBVC campus.
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**V. Questions Related to Strategic Initiative: Technology, Campus Climate and Partnerships.**

| **Part V: Technology, Partnerships & Campus Climate** |
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|  | Program does not demonstrate that it incorporates the strategic initiatives of Technology, Partnerships or Campus Climate. Program does not have plans to implement the strategic initiatives of Technology, Partnerships or Campus Climate | Program demonstrates that it incorporates the strategic initiatives of Technology, Partnerships and/or Campus Climate. Program has plans to further implement the strategic initiatives of Technology, Partnerships and/or Campus Climate. |

Describe how your program has addressed the strategic initiatives of technology, campus climate and/or partnerships. What plans does your program have to further implement these initiatives.

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| Geology-Oceanography and the Strategic Initiative of Technology:In addition to traditional lecture methods, including class discussion and whiteboard, the Geology-Oceanography Department is using the following technologies:* Classroom computer and LCD projector for PowerPoint, Google Earth, World Wind, and other computer animation software,
* VHS and DVD educational videos,
* Blackboard course management system,
* Student e-mail, and
* Preparing for and launching new Geology and Oceanography pages on the revised SBVC official website (officially launched in May 2011).

In addition to continued incorporation of the above current classroom technologies, the Geology-Oceanography Department may accommodate one version or another of the classroom response system (CRS), otherwise known as the “classroom clicker” system. Because the telecourse format has been retired for some time, the Department plans to offer hybrid and online DE (distributed education) formats, including interactive television (ITV) to increase student access and FTE. Naturally, only courses suitable to these DE formats will be implemented (e.g. lecture courses are more amenable to this technology than physical science laboratory and field courses). This Department will continue to work closely with the College, Science Division, Audiovisual Department, Curriculum Committee, Program Review Committee, and Technology Committee. Indeed, the following Geology and Oceanography courses have already been or soon will be submitted to the Curriculum and Online Committees for DE approval (fully online, hybrid, etc.): GEOL 101, GEOL 112, GEOL 122, GEOL 250, GEOL 251, and OCEAN 101.Geology-Oceanography and the Strategic Initiative of Partnerships:Geology-Oceanography and related (including the Geology-Oceanography faculty chair) faculty have been actively engaged within the following on- and off-campus partnerships:* Faculty have served on the Interclub Council (ICC), as an advisor.
* Faculty have served as primary advisor for the Geology (“Southern California Trekkers”), Alpha Gamma Sigma (AGS), and Gay-Straight Alliance (GSA) student clubs.
* Faculty have collaborated with the Science Division on the Environmental Sciences/Studies Degree program.
* Faculty have successfully participated in the “Science Learning Center” grant and continue to support efforts within the Student Success Center (primary SBVC tutoring center).
* Faculty attend events and have collaborated with the San Bernardino County Museum (and future “Hall of Geologic Wonders”). This partnership includes faculty presentations to the larger community and maintenance of the seismometer on the Museum grounds.
* Working with Cal State-San Bernardino and UC-Riverside Geology Departments.
* Working with the US Forest Service in regards to Environmental Studies and Mining Geology.
* Collaborating with private geological environmental consulting firms, including Tetratech, Inc.
* Working with various local and regional gem and mineral societies (e.g. “Gem-o-Rama” event in Searles Lake, “Victorville Gem and Mineral Show” in the High Desert, Southern California Friends of Mineralogy, Geological Society of America, and other public and non-governmental organizations).

Future plans include:* Increased collaboration with the SBVC Planetarium for special topics such as: Earth-Sun relations, seasonal differences in constellations, and extraterrestrial/planetary geology,
* Increased collaboration with future Student Success Center (tutoring center) grant and tutoring opportunities,
* Incorporation of Earth and Environmental Sciences into GIS Certificate Program (and, in turn, elements of GIS being increasingly incorporated into Geology-Oceanography courses),
* Strengthened partnerships with Astronomy, Biology, Chemistry, Engineering, English, Environmental, Geography-GIS, Mathematics, Physics, and other courses outside of traditional Geology-Oceanography programs,
* Increasing the scope of grant development for student recruitment, retention, success, transfer, and internships within the Earth Sciences,
* Increasing the scope of partnerships with the US Geological Survey (USGS), California Geological Survey (CGS), and California Coastal Commission, and
* Creation of student internships at Cabrillo, Long Beach, and other regional aquariums.

Geology-Oceanography and the Strategic Initiative of Campus Climate:The Geology-Oceanography Department has contributed to and participated in the following:* Informative scientific displays (bulletin boards and display cabinets), demonstrating the breadth of the discipline, especially within the new Physical Sciences Building and via participation in sanctioned events like the Week of Welcome and Club Rush activities,
* Planning for and presentation at on-campus “Great Shakeout” annual earthquake presentation activities (shakeout.org),
* Primary advisor service for the Geology Club student organization,
* User group input for new Physical Sciences Building,
* Planning and participation in the successful summer 2011 move into the new Physical Sciences Building,
* Concern for student safety, as reflected in annual Program Review Needs Assessment and Efficacy documents,
* Concern for the local and regional environment through Geology Club and course-related fieldtrips (e.g. Ocean Cleanup Day and instilling in students a comprehensive understanding of the finite supply of many of our natural resources, understanding of geological and environmental hazards throughout Southern California, awareness of fuel and non-fuel resources within Southern California, and awareness of Geology-related job opportunities within Southern California),
* Planning and implementation of the new San Bernardino Valley College official website.
* Planning and participation in “Super Saturday,” “Science and Math Day,” “Women in Science and Mathematics,” and related campus open house events,
* Continued input into the operations of the Student Success Center (and related tutorial support services) via grant opportunities and recruitment of student tutors,
* Collaboration with campus Outreach and Student Services to attract a truly diverse student population,
* Inviting former SBVC Geology and Oceanography students who have successfully transferred to Cal State, University of California, and other four-year institutions (and who are working in an Earth Science field) to give guest lectures and workshops to current SBVC students, and
* Faculty adviser service for the Geology Club, AGS Club, GSA Club, and Interclub Council (ICC) student organizations.

Future plans include:* Participation in STEM (science, technology, engineering, and mathematics) projects in order to attract greater numbers of elementary school, middle school, high school, and community college students from our local community into these important, 21st-century transfer and career opportunities. This is especially important for traditionally underrepresented student populations.
* Participation in campus and community dialogue about the unique geologic and environmental hazards, natural resources, and job and educational opportunities within Southern California.
* Creation of permanent “geological wonder” displays throughout the SBVC campus (beyond the new Physical Sciences Building and perhaps including the San Jacinto Fault that runs through the center of campus).
* Co-hosting (with the Career and Transfer Center) an Earth Sciences Career and Transfer Day event for SBVC students and members of the community.
* Co-hosting (with Geological Society of America, Southern California Friends of Mineralogy, local four-year institutions, US Geological Survey, Southern California Earthquake Consortium, and other public and private environmental consulting and mining organizations and companies) an “Ask a Geologist” lecture/panel series.
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