Bakersfield College
Program Review – Annual Update

Attachments (place a checkmark beside the forms listed below that are attached):

Faculty Request Form	Classified Request Form	Budget Change Request Form
ISIT Form	M & O Form	X Best Practices Form **(Required)**
Other: _____		

I. Program Information:

Program Name: *Geology (includes earth science and geography curriculum)*

Program Type: *Instructional*

Program Mission Statement:

The primary mission of the geology program is to serve students seeking CSU/UC transfer into the undergraduate BS geology degree, satisfy core science requirements toward the AA community college degree, and give students the opportunity to gain invaluable geological knowledge for geology employment.

Program Description: Describe how the program supports the mission of Bakersfield College

The geology program supports the overall BC mission by serving our community with various geology courses that support employment prospects within the Bakersfield community and surrounding areas. In fact, 43% of geology graduates are employed in the petroleum industry, which includes Bakersfield and surrounding communities. It is the mission of the geology program at BC to provide quality instruction that prepares each student with the necessary academic tools to seek employment in the field of geology.

Degrees and Certificates: List the degrees and/or Certificates of Achievement awarded by the program, if applicable.

Currently, the geology program offers the Associate in Science degree (AS) in geology. However, it is anticipated that the current AS degree will be deleted and the geology program will be offering the AS-T (Associate of Science Transfer) in place of the AS degree as of spring 2014.

II. Program Assessment:

a. How did your outcomes assessment results inform your program planning?

Formal and informal assessment of student learning outcomes (SLO's) during the 2012-2013 semesters demonstrated that students enrolled in geology, geography, and earth science courses are continuing to improve and master both content vocabulary as well as processes within each instructed discipline (geology, earth science, geography), indicating our program plan continues to move in a positive direction. Informal assessment strategies include the use of I>clickers, class discussions, assigned study groups, and various checking for understanding techniques. Formal assessments include closed book/note exams, quizzes, and the semester pre- and post-tests that cover questions related to SLO's.

b. How did your outcomes assessment results inform your resource requests this year?

Outcome assessment results indicated a need for increased "hands-on" activities both in lecture and lab content. The purpose of these activities is to increase student retention rates and mastery of content material. Labs have been reworked and rewritten to incorporate various resources allowing students to perform the hands-on activities.

c. Note any significant changes in your program's strengths since last year.

Establishment of the AS-T degree in geology significantly strengthens the geology program in terms of attracting students who will emerge with a solid degree guaranteeing transferability at junior-level status to any CSU/UC institution.

The BC geology program continues to refine and streamline our curriculum through alignment meetings. Curriculum alignment meetings are held after each semester for the purpose of preparing content alignment for both lecture and lab topics. All geology/earth science instructors (full-time and adjunct) align their syllabi with content topics to ensure that students receive consistent instruction regardless of who (instructor) is instructing the class.

Significant changes within the BC geology program have contributed to a stronger relationship with Cal State University Bakersfield (CSUB) geology program. Continued collaboration between both BC and CSUB instructors has resulted in increased geology student transfers, BC students concurrently completing geology-related classes on both campuses, CSUB geology field trips with invited BC students, and BC students being given the opportunity to participate in extracurricular geology-related activities.

d. Note any significant changes in your program's weaknesses since last year.
There has been no significant change regarding program weaknesses. However, it would be of great value if the college, as a whole, would devote more resources toward professional development outside the college, such as providing funding for memberships in professional organizations and financial support toward attending professional conferences, such as the Great Teachers' Seminar.

e. If applicable, describe any unplanned events that impacted your program.
The budget crisis limited enrollment for the 2012-2013 year.

III. Technology and Facilities Analysis
a. Has your program received new or repurposed technology in this cycle?
The geology program has not received new repurposed technology in this cycle.

i. If yes, how have you assessed the outcome of the use of that technology and its effectiveness as it relates to student outcomes?
N/A

ii. If no, what technology could play a contributing factor in future student success and outcomes for your program? How would you evaluate the use of this technology?
The BC geology program would like to see completion of our showcase lab proposed earlier. The lab showcase would incorporate an online weather station, the use of virtual reality activities, the operation of bright link computer capabilities, stream channel table (to explain sedimentary processes), class set of I>clickers (lecture instruction), and a class set of laptop computers (for lab instruction).

Use of this technology would be incorporated within all aspects of our content material in both lecture and lab (geology, earth science, geography) and evaluated by measuring student retention rates of SLO's through informal and formal assessment strategies, level of student passion for the subject matter, and degree of scientific interest and awareness within the K-12 student community.

iii. How might other areas use this technology?
Other areas using this technology certainly would include potential geography majors, non-science majors working toward their multiple and secondary teaching credentials, and teachers/students within K-12 classes around Kern County.

(NOTE: Technology requests can be made by filling out the ISIT Request form.)

b. Has your area received any facilities maintenance, repair or updating in this cycle? If yes, how has the outcome contributed to student success?

Areas of maintenance repair include fixing lights in the geology prep room and new locks installed on MS building doors. Additionally, previously broken chairs have been repaired and anchored to the floor in MS-2. The geology prep room is now a "working prep room" (we can see) for instructors to prepare quality lab activities and exams which have given students the opportunity to work with well-designed, high-quality lab exercises. Repaired chairs in MS-2 are safe for students, opening up more chairs for student enrollment.

(NOTE: Facilities and M&O requests can be submitted by completing the M&O request form)

IV. Trend Data Analysis:

Discuss any significant changes in data trends over the last year using data provided by Institutional Research. Metrics may include the following:

a. Changes in student demographics (gender, age and ethnicity)

There are no significant changes.

b. Changes in enrollment (headcount, sections, course enrollment and productivity)

Data indicate a 2% drop in geology enrollment; however, the drop in enrollment is less than the drop of 4% overall for BC. However, geology, earth science and geography lecture/lab courses continue to reach maximum enrollment each semester with waiting lists filled to capacity. At present, BC offers a total of 3 geology B10 sections with 5 sections of geology B10L, 3 sections of earth science B10 with 5 sections of earth science B10L and 3 sections of geography B1 with 3 sections of geography B1L as well as 2 sections of geography B2. The geology program is supported by 3 full-time and 7 adjunct professors. In fact, geology, earth science and geography courses are presently taught concurrently both at the main and Delano campuses.

c. Success and retention for face-to-face, as well as online/distance courses

The geology program shows an overall improvement of student success and retention since the 2011-2012 school year. During the 2011-2012 school year, student retention was 84.7% and has improved in 2012-2013 to 88.5%, resulting in a 3.8% increase in the student success and retention rate.

d. Degrees and certificates awarded (five-year trend data for each degree and/or certificate awarded)

There have been no certificates or degrees awarded for the 2012-2013 school year. However, data shows that most students majoring in geology at BC transfer to a 4-year undergraduate geology program. It would be interesting to collect data from BC geology majors that have continued and graduated from a 4-year institution. Implementation of the AS-T degree in geology will increase the number of degrees earned in geology at BC in the future.

e. Other program-specific data *(please specify or attach)*

None

V. Progress on Program Goals:

List the program's goals from the previous Program Review. For each goal, please discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section. Previously

Established Goal 1: *Showcase geology, geography science lab in MS-6*
Progress on Goal: *In progress*
Completed: **_____(Date) Revised: _____ (Date)**
Comments on Goal 1:
Our showcase lab development is in progress with funds awarded from the ongoing STEM-grant. The MS-6 showcase lab proposal has been completed and submitted.

Previously Established Goal 2: *Construction of the Geology Rock Garden*
Progress on Goal: *In progress*
Completed: _____ (Date) Revised: _____ (Date)
Comments on Goal 2:
The SE building courtyard has recently undergone reconstruction with completed concrete walkways. The designated area for the BC geology rock garden is awaiting the completion of the proposed concrete outline of California, type section rock samples representing the geology of California, and marquee describing the various rock samples in the garden.

Previously Established Goal 3: *Establishment of the AS-T degree in geology*
Progress on Goal: *Complete and awaiting approval and print in the spring 2014 BC catalog*
Completed: _____ (Date) Revised: _____ (Date)
Comments on Goal 3:

The AS-T degree is complete and complies with senate bill SB1440. Currently, our geology program is awaiting approval.

VI. Curricular Review (Instructional Programs only):
a. List each of the courses offered within the discipline's academic program in the first column, using one row per course. Place an **X** in the appropriate column to indicate when the course is scheduled for review.

Course	**2013-2014 (2019-2020)**	**2014-2015 (2020-2021)**	**2015-2016 (2021-2022)**	**2016-2017 (2022-2023)**	**2017-2018 (2023-2024)**	**2018-2019 (2024-2025)**
Geol B10		**X**				
Geol B10L		***X***				
Geol B11			***X***			
Geol B11L			**X**			
Geol 12				***X***		
Geo 21				**X**		
Geo 35a				***X***		
Geo 35b				***X***		
ERS B10		**X**				
ERS B10L		***X***				
Geog B1			***X***			
Geog B1L			***X***			
Geog B2			***X***			
Geo B3			***X***			

b. List courses that are proposed for *addition*.

None

c. List courses that are proposed for *deletion*.

None

d. List any changes the program has made to online/hybrid/distance education courses.

Currently, there are no online, hybrid, or distance geology courses.

e. Provide an update on the program's transition to adopting a Transfer Model Curriculum (AA-T or AS-T), if applicable.

Currently, the AS-T degree for geology has been completed and aligned with the terms outlined in senate bill SB1440. The AS-T degree is awaiting approval, and it is anticipated that the degree description will be presented in the spring 2013-2014 catalog. Furthermore, students that have currently started the AS-T geology track will be able to continue with AS-T courses toward their BC geology degree.

VII. Conclusions and Findings:
Present any conclusions and findings about the program.

The geology program at BC is healthy. The primary mission of the geology program is to serve students seeking CSU/UC transfer into an undergraduate BS geology degree program, satisfy core science requirements toward the AA community college degree, and give students the opportunity to gain invaluable geological knowledge for geology employment. The AS-T degree in geology is designed to provide students a clear pathway to the CSU geology major and completion of the geology baccalaureate degree, to grant guaranteed admission to a CSU for a similar major, with junior standing, and to provide the ability to complete their remaining requirements within 60 semester or 90 quarter units. In fact, several students at BC have been made aware of the AS-T geology degree and are already completing various geology and other required courses in line with the AS-T geology degree. Therefore, it is anticipated that there will be future geology degrees earned in subsequent academic years. Employment data for geologists within the Bakersfield community and outlying areas indicate there are more available jobs than there are geologists to fill them. Currently, 43% of geology graduates are employed in the petroleum industry which includes Bakersfield and surrounding communities. It is the objective of Bakersfield College to provide students with the Associate of Science in Geology for Transfer Degree (AS-T), which replaces the previous Associate of Science (AS) degree outlined in the current catalog of programs. The future outlook for geology employment is excellent, and the goal of BC is to provide the necessary geology coursework for transfer students to make a smooth transition into the CSU system and pursue higher-level geology degrees.

Faculty members of the BC geology program continue to strengthen communication and activities with faculty at the CSUB geology program. Students have already benefited from strong ties between BC and CSUB geology programs. With acquisition of our STEM-grant, the geology program at BC is slated for technological improvement. Our showcase lab proposal has been completed and submitted. Incorporated in the lab showcase proposal are various student engagement activities that highlight important areas of geology, earth science, and geography. Additionally, the construction of the geology rock garden is currently underway and, when completed, will serve both faculty and students regarding the geology of California. A total of 14 geology-related courses, including geography courses, are currently scheduled for curriculum review within the next five years, updating each course under the 6-year review cycle.