

Bakersfield College 2018-2019 Program Review – Annual Update

Program Name: Geology AS-T

Bakersfield College Mission: Bakersfield College provides opportunities for students from diverse economic, cultural, and educational backgrounds to attain Associate and Baccalaureate degrees and certificates, workplace skills, and preparation for transfer. Our rigorous and supportive learning environment fosters students' abilities to think critically, communicate effectively, and demonstrate competencies and skills in order to engage productively in their communities and the world

Describe how the program supports the Bakersfield College Mission:

The geology and geography program supports the overall BC mission by serving our community with various geoscience courses that not only support employment prospects within Bakersfield and surrounding areas but educates, to some extent, on the value of sustainability at a local and global level. Several geology graduates are employed in the petroleum industry locally and in neighboring regions. The mission of BC geology and geography program is to provide quality instruction and a sturdy academic foundation that will prepare students with the necessary skill set and academic qualifications to seek employment in various geoscience jobs at the local, national, and international level.

Instructional Programs only:

- A. List the degrees and Certificates of Achievement the program offers
Geology (AS-T)
- B. If your program offers both an A.A. and an A.S. degree in the same subject, please explain the rationale for offering both and the difference between the two.
- C. If your program offers a local degree in addition to the ADT degree, please explain the rationale for offering both.

Program Goals:

- A. List the program's current goals. For each goal (minimum of 2 goals), discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section. Please provide an action plan for each goal that gives the steps to completing the goal and the timeline.

1. **Program Goal:** *Develop and improve online and hybrid instructional methods for various geoscience courses.*

List the institutional goals from the Bakersfield College Strategic Plan that will be advanced upon completion of this goal?

Student Learning, Student Progression and Completion, Facilities

Progress on goal achievement: ***Preliminary stages of development. Ongoing.***

Status Update – Action Plan and link to Resource Requests: ***The major difficulty here is creating good online lab activities. The geology department is in the preliminary stages of searching for and reviewing currently available online activities offered from other academic institutions to assist in development of online activities that can be used for future BC online and hybrid geoscience courses. We continue to browse online materials that can be used or act as a template to build online geoscience courses.***

2. Program Goal: *Increase utilization of field trips and virtual field trips to support instruction.*

List the institutional goals from the Bakersfield College Strategic Plan that will be advanced upon completion of this goal?

Student Learning

Progress on goal achievement: *Early stage. Ongoing.*

Status Update – Action Plan and link to Resource Requests: *Incorporation of new and exciting field trips that can supplement and enhance classroom instruction is an ongoing process in the geology department. We actively seek new areas to explore with our students. We are currently looking into freely available online virtual field trip experiences in consideration to supplement classroom learning. However, from a traditional field trip perspective, this goal is significantly hindered by the lack of transportation available for use. This goal is at a near standstill with the exception of a few lackluster on campus or neighboring Panorama Drive bluffs field trips. This has proven to be a significant difficulty facing our geology club as well.*

Virtual Field Trip update: Since Spring 2018 a few freely available online virtual field trips or similar type websites have been identified [ex. United States Geological Survey online 3D National Park Geology archive]. We continue to search for additional materials that can be used or act as a template to build online virtual field trips.

Standard Field Trip update: Since Fall 2017 there has been difficulties with transportation for course and club field trips. We have been using external rental car agencies but it is a costly, unreliable, and poor solution. A request for departmental vans or additional budget to hire a bus and/or driver to transport our students are being requested during this program review.

B. List new or revised goals (if applicable)

Program Goal: *Construct an outdoor interactive geology exhibit*

List the institutional goals from the Bakersfield College Strategic Plan that will be advanced upon completion of this goal?

Student Learning, Facilities

Progress on goal achievement: *Temporarily on hold (?)*

Status Update – Action Plan and link to Resource Requests: *In the past funding donated by PG&E was set aside to construct an outdoor geology exhibit to benefit student education. We are uncertain if these funds are still available and are searching them out. If available we would like to use them to construct said outdoor interactive geology exhibit in the form of a “rock identification garden” or “paleo digging pit” for incorporation into lab activities and for use with campus visitors [ex. middle & high school college bound group visits]. We are actively tracking down the whereabouts of these funds. However, BC is also currently schedule for a great deal of construction in the near future that will change the look of the campus. We’re uncertain to what extent this would affect this goal.*

Program Analysis:

Take a look at your trend data (all programs should have some form of data that is used to look at changes over time). *All programs will answer the following questions unless otherwise indicated.*

1. Please report on any unexpected changes or challenges that your program encountered this cycle:

- *Number of geology students has been decreasing since Fall 2013. We speculate this change reflects a current fluctuation in the petroleum industry with more layoffs than jobs availability over the last few years due to decreasing oil price.*
- *Number of Hispanic Earth Science students decreased sharply (10% drop) in 2017-2018. We are uncertain as to why this could be; it contrasts greatly with past enrollment data for Earth Science courses.*

2. How does your trend data (or other data your area collects) impact your decision making process for your program?

- *The current trend data concerning decreasing geology students mildly affects our departmental decision making as current retention and success rates for Geology (96% and 84%), Earth Science (95% and 73%), and Geography (93% and 68%) courses are the highest since 2013-2014.*
- *The current trend data concerning decreasing geology students mildly affects our departmental decision making as we feel it to be a natural and cyclic decrease. Our number of geology students is typically heavily dependent on job trends in the petroleum industry. When the petroleum industry is booming we tend to see higher numbers of geology students in our program.*
- *However, we do actively attempt to increase the number of geology students each academic year. Currently professors Pierce and Benker are discussing possibility of a dynamic multi-state summer geology course/field experience aimed at attracting new students into the geology major.*

3. Evidence of Department Dialog of data

- *At this point in time all discussions of department trend data have been verbal with topics including: a) fluctuation of petroleum industry jobs on # of geology major [we viewed and discussed recent data (https://www.rigzone.com/news/oil_gas/a/148548/more_than_440000_global_oil_gas_jobs_lost_during_downturn/) that support our conclusion on decrease in geology students], b) interest in slight increase in African American students enrolling as we firmly support and promote the idea of increasing the number of underrepresented minorities in the sciences, and c) the general importance of monitoring this trend as the geosciences have the lowest representation of African Americans of all STEM careers as reported by Huntoon et al. (2015) (<https://eos.org/project-updates/creating-career-paths-for-african-american-students-in-geosciences>).*

4. Were there any changes to student demographics (age, gender, or ethnicity) for the past cycle?

- *Yes. Number of African American students enrolled in geology and geography slightly increased (about 5% of students) in 2017-2018 where it remained steady (about 3% of students) last 4 years.*

5. Were there any changes to student success and retention rates for face-to-face and online courses? (instructional only)

- *2017-2018 had highest geology and geography student retention rate since 2013-2014.*

6. Equity gaps

7. Please describe any recent achievements of your department, including but not limited to faculty who have won awards or distinctions, new projects your department has implemented, professional development work, professional conference presentations or recently published work.
- *Historical geology course has shifted to a free online textbook.*
 - *Prof. Benker volunteered with Dr. Rosenthal (Chemistry Dept.) to assist in a series of 3 Saturday science activities at Palla Elementary School.*
8. The college has embarked on significant efforts such as **Guided Pathways**, **affinity groups** and **completion coaching communities** to improve the success and completion rates of our students. Please describe what your program/department/office is doing to contribute to these efforts.
- *Profs. Pierce and Benker attended the joint degree program meeting in 2017-2018 and discussed program requirements for CSUB with Prof. Krugh inconsistencies and potential weaknesses in transfer degree plans. It was discovered BC requires one additional mathematics course, Calculus 2, where this is not a requirement for CSUB's geology program. It should be noted Calculus 2 is a requirement for many other regional colleges.*
9. Explain your role if you are involved in Dual Enrollment, Inmate Education, or Rural Initiatives.
- *Prof. Pierce has taught courses in Delano for the past several academic years.*

Analysis of Received Resources from Previous Cycle

Discuss the type of resources you received and their Impact on program effectiveness?

Facilities: *None received.*

If your program received a building remodel or renovation, additional furniture or beyond routine maintenance, please explain how this request or requests impacts your program and helps contribute to student success.

- 1: Space Allocation
- 2: Renovation
- 3: Furniture
- 4: Other
- 5: Beyond Routine Maintenance

Technology: *None received.*

If your program received technology (audio/visual – projectors, TV's, document cameras) and computers, how does the technology impact your program and help contribute to student success?

- 1: Replacement Technology
- 2: New Technology
- 3: Software
- 4: Other _____

Other Equipment: *None received.*

If your program received equipment that is not considered audio/visual or computer equipment technology, please explain how these resources impact your program and help contribute to student success.

Conclusion:

Present any conclusions and findings about the program. This is an opportunity to provide a brief abstract or synopsis of your program's current circumstances and needs. Consider this a snapshot of your program if someone were to only read this portion of your annual program review.

The BC Geology and Geography department continues to show good student retention and success rates. Many students enter geology as they're intimidated by chemistry and physics courses and often have little interest in science. We can happily say we turn these ideas around with students finishing our classes being somewhat less intimidated by the sciences. We have a dedicated core group of students majoring in geoscience as well as an enthusiastic geology club that remains active on campus.

Students who do not succeed in the geology program typically demonstrate insufficient math ability, lack of study skills, poor time management, or a combination of these factors. While the number of geology students has been decreasing since 2013-2014 this does not consider that the geology department was without a permanent full-time faculty member over the last few years. Data will likely change due to the addition of Prof. Benker to the geology department faculty as of Fall 2017. With additional faculty supporting the department the workload can be better distributed allowing for increased time for geology major recruitment efforts.

One of the largest issues we see within our program at the moment is the lack of transportation or mystery behind acquiring transportation for geology course and geology club field trips. While we have observed official Bakersfield College passenger vans on campus we do not know who they belong to and if they can be used for course and club activities. Additionally, the large numbers of student athletes on some teams suggest an official BC bus may be used—but we're unsure if BC owns a passenger bus and if this bus could be utilized for course field trips. The general attitude seems to be geared towards having students drive their own vehicles and carpool to field trip locations. Given that Bakersfield is currently ranked 3rd in the United States for worst air quality we feel this is a terrible idea.