LDC Program Review – Annual Discipline Update for 2021-2022
PART A

SECTION 1: BASIC PROGRAM/DISCIPLINE INFORMATION

SAC Name: **Geology and General Science**

Disciplines included in this SAC:

SAC Chair(s): Andy Hilt & Lalo Guerrero

Faculty Department Chair(s): Mike Mackel, Tony Zable, Vicki Schroeder, Jim Schneider

Program Dean/ SAC Administrative Liaison: Ken Friedrich

Pathway Dean: Alyson Lighthart

Please highlight where your classes are offered.

Classes/Services offered at: **CA / RC / SE / SY** / **NB** / HC / WCC / Metro / CLIMB
Other:

SECTION 2: REFLECTING ON DATA

All data cited below can be found here:

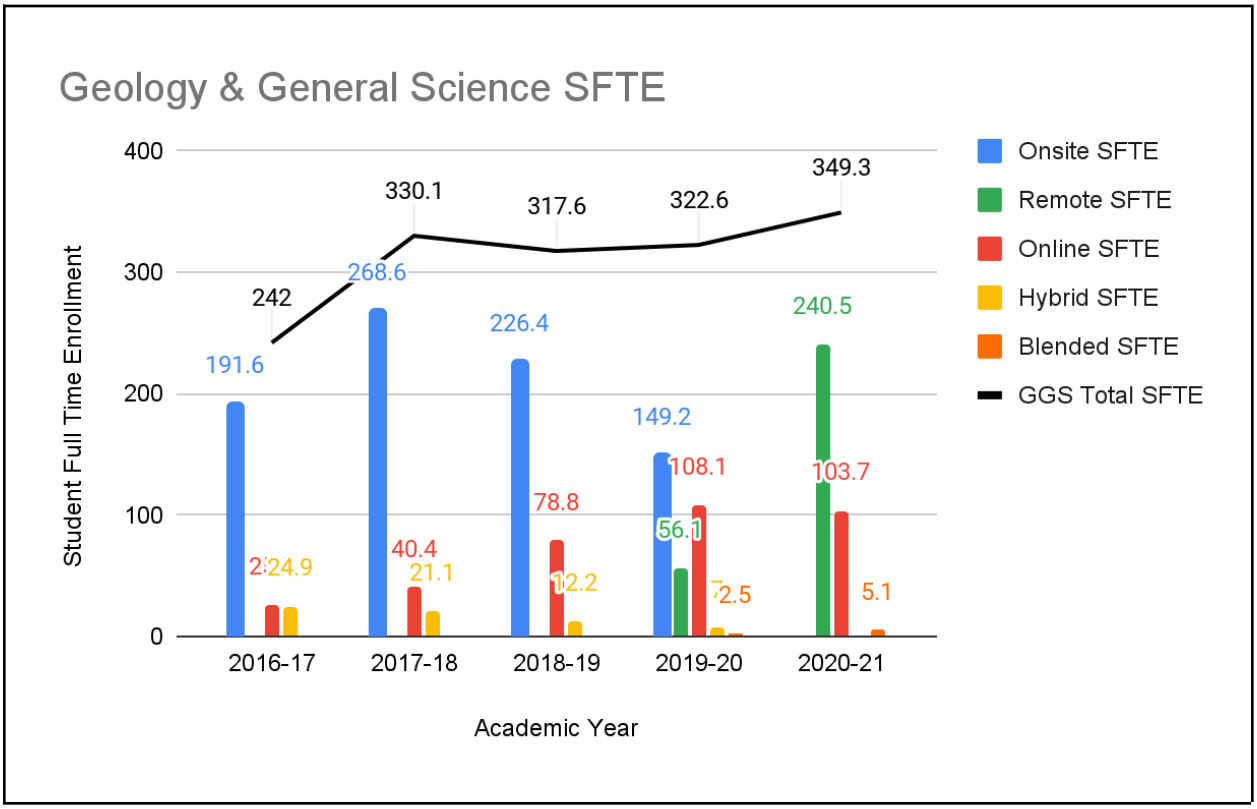
https://www.pcc.edu/institutional-effectiveness/program-profiles/

***Note the row of Tabs just below your Bookmarks Bar. Begin on the Home Tab. This is where you will choose your selection criteria for your data. Return to the Home Tab whenever you want to change your selection criteria. See the Help and Data Dictionary Tabs as well as the Data Directions Document included in the email with this template for more information.

Please include data from at least the last three years and up to the last five years. A 3-year enrollment review is recommended. SACs may have unique circumstances and reasons for looking more or less broadly.

2A.Enrollment (SFTE) per year; Location (where course is taught); Modality

We are only analyzing college-wide enrollment for our Annual Discipline Update for two reasons: First, the COVID-19 pandemic effectively invalidated campus distinctions and forced our discipline group to view our program through a single-college lens. Second,the pandemic coincided with the college reorganization and we are considering GGS course offerings holistically as a single program as part of this process.



Student Full Time Enrollment (SFTE) in courses offered by the Geology and General Sciences (GGS) SAC has seen an overall increase from 242 in '16-'17 to 349 in '20-'21. This increase in

SFTE is the inverse of Physics (PHY) and Chemistry (CH), where both SACs have seen an overall decline in SFTE over the same timeframe (Appendix A, Chart 1). When we compare total enrollment in ‘18-’19 and ‘20-’21 as opposed to SFTE, we see that GGS courses serve an overall higher number of students than PHY (Appendix A, Chart 2).

As shown in Charts 3, 4 and 5 in Appendix A, the rise in SFTE comes from increased enrollment in General Science and 100-level Geology courses.

- SFTE in GS 107 - Astronomy jumped from 47.9 in ‘16-’17 to 72.1 in ‘20-’21.
- SFTE in G 184 - Global Climate Change grew from 18 in ‘16-’17 to a high of 60 in ‘18-’19, and experienced a minor decrease to 57 in ‘20-’21.
- G 147 - Geology of National Parks, a course which was introduced in ‘17-’18 started with an SFTE of 11.3 and reached 42 in ‘20-’21 .
- G 148 - Volcanoes and Earthquakes experienced steady growth in SFTE from 11.2 in ‘16-’17 to 51 in ‘20-’21.

Conversely, 200-level Geology courses experienced an overall decrease in SFTE, particularly G 201, 207, 208, and 209. The latter three classes lack a lab component, and two of these (G 208 and G 209) cover the same material as G 148, and we are in the process of phasing them out as online courses.

The rise in SFTE in courses offered by GGS is remarkable given the COVID-19 pandemic. Onsite SFTE spiked up to 268.6 in ‘17-’18 and experienced a steady decline until it reached 149.2 in ‘19-’20, meanwhile, online SFTE experienced steady growth from 25 in ‘16-’17 to a high of 108.1 in ‘19-’20. The decrease in onsite SFTE is close to proportional to the increase in online SFTE. Hybrid SFTE experienced a steady decline until ‘19-’20, this decrease in hybrid is also tied to the increased proportion of online SFTE.

2A1. Do these data suggest any questions that the SAC would like to pursue?

The SAC found this question unclear, we didn’t know if we should pursue answers in this ADU or whether we should focus on these questions for the next year.

1. How does SFTE in Geology and General Science SAC course offerings (GGS) compare to offerings from other Science and Engineering Pathways SACs? There are various areas of comparison that we would like to explore: Student demographics, required vs non required for completion of degree, and enrollment in 100 vs 200 level courses.

2. How has the rise in OL/DL course offerings from GGS impacted success rates in specific courses?

3. Due to redundancy in other courses and lack of a lab, the SAC would like to explore phasing out G 208 and G 209 and possibly converting G 207 into a 4-credit lab course.

2A2. Do the data suggest adjustments be made in your discipline, such as schedule or course offerings, with regards to enrollment? If yes, what ideas/strategies do you have that you would like to implement or have help with in the upcoming academic year?

As the return to in-person instruction approaches, we hope to maintain our share of SFTE in GGS course offerings. The '21-'22 academic year is the first time that the scheduling process is taking place at the college level. We hope that simplifying the scheduling process from the existing campus-only model to the holistic college-wide model will lead to fewer scheduling clashes and a more consistent scheduling that is not only responsive to individual campus needs, but also provides a level of stability for GGS PT faculty who often bore the brunt of miscommunication between campuses under the old model. At present, the whole college scheduling for GGS takes place between 4 FDCs, none of whom are members of the GGS SAC. We hope that the future GGS FDC position will simplify and improve the process.

2A3. Are there other data reports that you would find informative/useful with regards to enrollment? How would this information support decision-making for the SAC/discipline?

It would be very helpful to have "pathways" and "whole college" categories added to the data page, this would make it easier to extract information to compare data from one SAC to another within a specific pathway. This would give two different baselines with which to compare, and may reveal pathways-wide or college-wide trends that may have an impact on an individual SAC's course offerings.

2A4. Is your program aware of any external influences that strongly affect recent enrollment? For example, state requirements, transferability challenges, other university policies, etc. Please explain.

We are not aware of any external influences that strongly affect recent enrollment other than the COVID-19 pandemic, volatile social and political situations, and catastrophic environmental events that have impacted our community.

As highlighted in the last ADU, Geosciences have been undergoing a paradigm shift, where "Geology" students are no longer being prepared to enter resource-extractive careers (ie "traditional" Geology), and the future of education lies in an "Earth-systems" approach to education. Departments that offer "traditional" geology programs have suffered; therefore we need to shift towards a more holistic view of Earth-system science, with a greater emphasis on atmospheric and ocean sciences. We also need to respond to growing interest in planetary geology resulting from recent missions to Mars and asteroids, and the planned return to the Moon as part of the Artemis program.

2B. Course Success Rates

Data Definition: Success rate represents the percentage of students who successfully complete a course. It is calculated as:

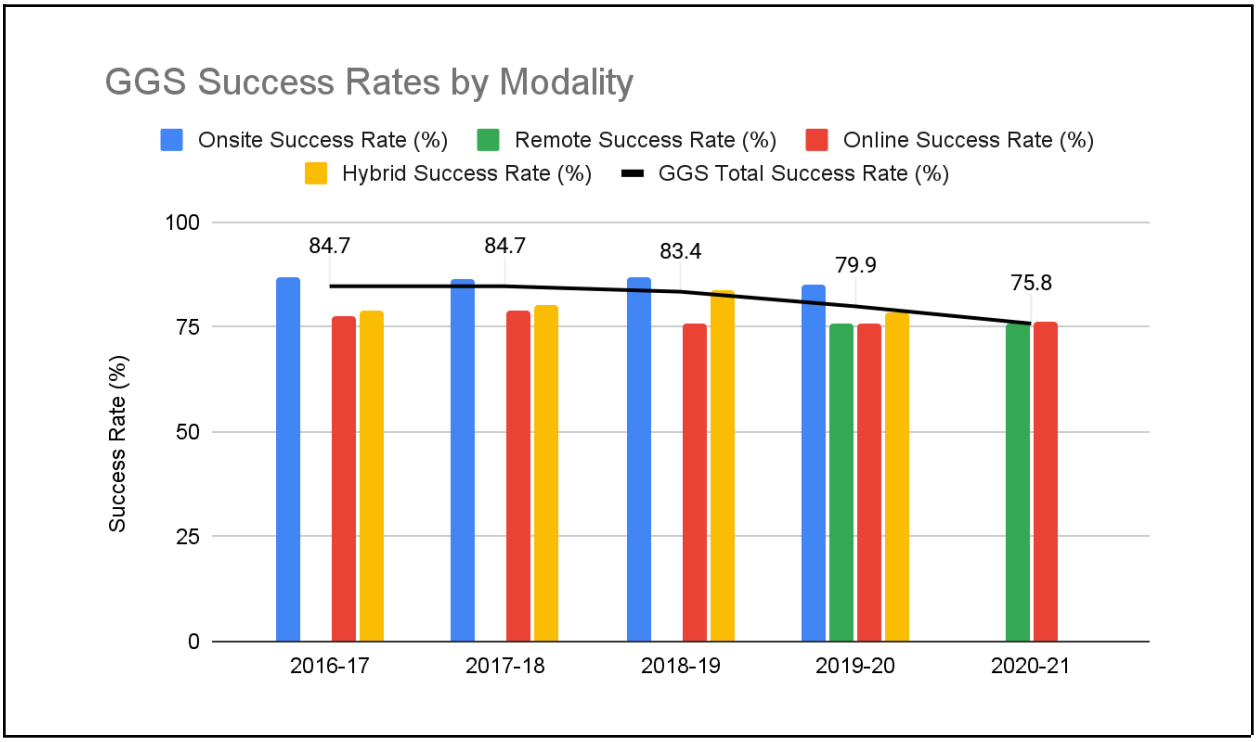
$$\%\ S = \frac{\text{Number of students receiving a grade of A, B, C, P, PR, or CM}}{\text{Number of students receiving a grade of A, B, C, D, F, P, NP, I, W, PR, CM, N, UP}}$$

PR, CM, N, and UP are non-credit grades used in the Adult Basic Education program.

Success rates for gender and race are not calculated when the enrollment is less than 5. For any success rate that is not calculated, the total for that column is also not calculated.

% Success By Course and Modality

Success rates for GGS courses offered onsite were consistently above 80% until the COVID-19 pandemic. Online success rates have hovered near 75% throughout the dataset's timeframe. Hybrid success rates were consistently higher than Online success rates. Remote success rates were equivalent to online success rates.



2B1a. Are there any courses with lower or higher pass rates than others (over time, over many sections, or a notably higher or lower rate)? If so, which ones?

We present data from GS 107- Astronomy, G 184- Global Climate Change, and G 148- Volcanoes and Earthquakes to compare success rates of in-person vs. online learning in Appendix A. We selected these three courses because they are each offered as Online and Onsite (remote in '19-'20 and '20-'21) and the three of them fulfill the 4-credit science lab requirements. GS 107 was originally offered as both in-person and hybrid, but the hybrid option was discontinued once the online course was introduced. G 148 and G 184 were offered as onsite classes and haven't been offered as hybrid courses (Appendix A, Charts 8a and 9a). Overall, SFTE in GGS courses has increased since the '16-'17 academic year (Appendix A, Chart 6), however the Success rate chart above shows a decrease in overall success rate. We explore this relationship below.

GS 107- Astronomy has seen growth in SFTE from 47.9 in '16-'17 to 73.1 in the '20-'21 academic year (Appendix A, Chart 7a). The course was first offered online in '18-'19, and there is a stark divide in success rates by modality (Appendix A, Chart 7b). Onsite success rates for GS 107 ranged from 79% to 85.5% until the start of the COVID-19 pandemic. Online success rates for GS 107 ranged between 58% and 60%, and hybrid success ranged between 65% and 70%.

G 184- Global Climate Change has only been offered as an onsite or online course. This course was first introduced as an online course in '17-'18. It is an example of the outstanding contribution and dedication of our PT faculty- the course was conceived by PT faculty, the online course was built by PT faculty, is currently taught mainly by PT faculty, and is currently being revised and updated by PT faculty. There has been a consistent increase in SFTE from 18 in '16-17 to a high of 60 in '19-'20 (Appendix A, Chart 8a), with onsite offerings of G 184 decreasing as online offerings increase. At the same time, there has been a decrease in success rate from a high of 85.8% in '16-'17 to a low of 80% in '20-'21. While the COVID-19 pandemic has undoubtedly played a role in the lowered success rates in the last two academic years, the downward trend in success rates coincided with the upward trend in OL/DL offerings (Appendix A, Chart 8b). As we move forward and assess the effectiveness of OL/DL courses, we would like to note anecdotal evidence from instructors that there are cases where students "ghost" a class after the second week of the term and do not withdraw and fail the class, despite efforts to reach out to them- making the success rate issue one of engagement rather than course design.

G 148- Volcanoes and Earthquakes is a course that has experienced steady growth in SFTE from 11 in '16-'17 to a high of 51 in 2021 (Appendix A, Chart 9a). It was first introduced as an Online class in '18-'19. Success rates for the first year the course was offered were 90%, which is on par with the '16-'17 academic year; it experienced a sharp decline in success rates in subsequent years that accompanied the decrease of onsite SFTE (Appendix A, Chart 9b).

2B1b. Are there any modalities with lower or higher pass rates than others (over time, over many sections, or a notably higher or lower rate)? If so, which ones?

As outlined in section 2B1a, there is a correlation between high Online SFTE and lowered success rates, as evidenced by the three courses that we chose to analyze. It is unclear whether this is related to course design, student willingness to “ghost” the class, or issues of equipment/internet access or technology literacy.

2B2. Strategy Insights

What strategies have you used to maintain high success rates? What can be learned that might be applied to courses with lower success rates? What are possible actions to be taken to understand/address lower success rates? Please clearly explain how your discipline intends to explore content/curriculum, pedagogy/teaching, course material selection, etc. using culturally responsive teaching approaches throughout the next year. Try to identify a realistic one year goal.

One of the avenues that we would like to explore for making OL/DL courses more inclusive and culturally responsive is by designing courses in a way where students have a choice of how they meet the course outcomes, an approach that is equally relevant to onsite instruction. Our one-year goal is for the SAC to explore current course offerings as we return to onsite instruction to ensure that we are encouraging faculty to update materials that offer an inclusive view of the geosciences (ie- not the traditional bearded and plaid-shirt wearing geologist with a rock hammer in every picture) and explore avenues of giving students the choice to of pathways to meet course outcomes.

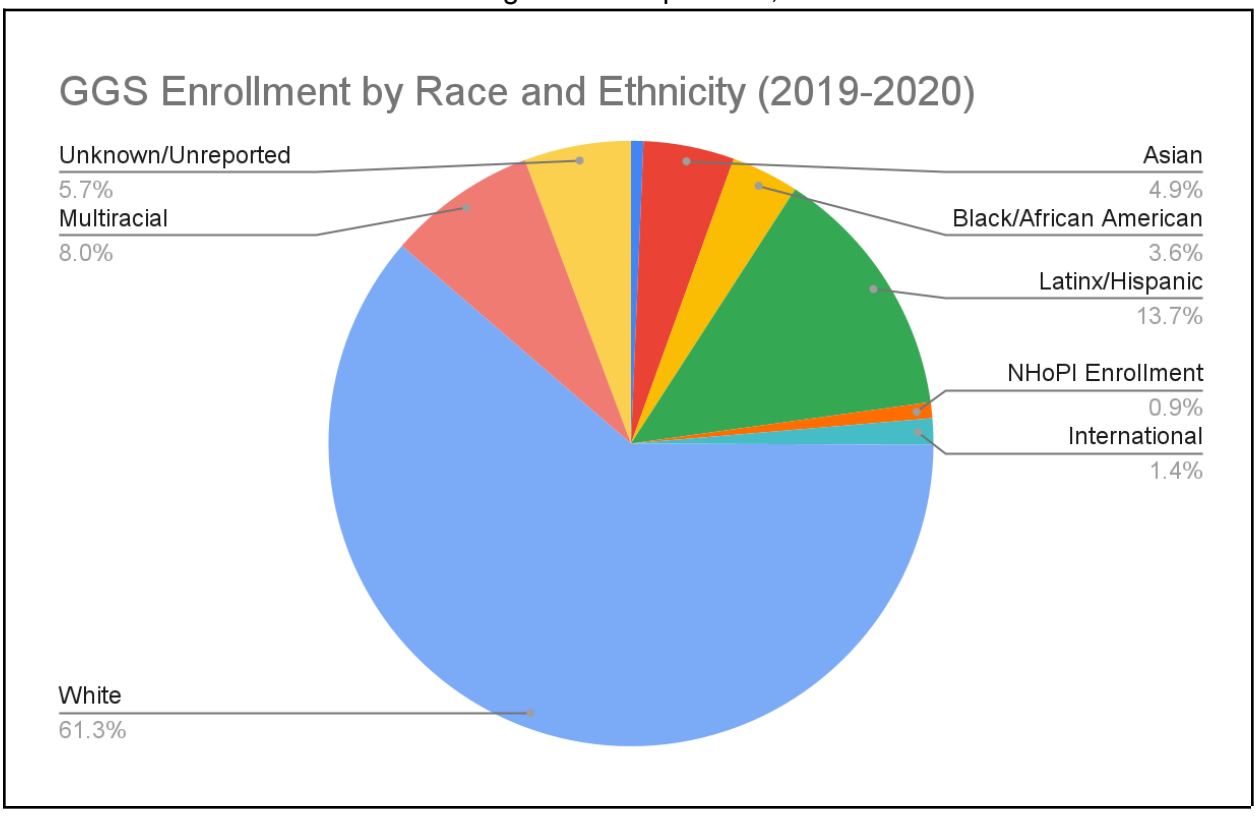
Success rates in GGS courses are consistently higher for onsite instruction, however SFTE also shows us that students are attracted to the flexibility of online learning. We would like to offer a higher number of hybrid courses, particularly for those classes which have already been through the OL/DL approval process. We think that this approach might entice students who seek the flexibility of online learning, but would benefit from immediate access to an instructor and collaboration with peers in the labs. We will need financial support in order to develop common lab-books and ensure equitative lab space and materials for existing hybrid courses (GS 107, 108, and 109) and to start the same development process for future hybrid courses (G 148, G 184) for the next academic year.

Enrollment and % Passing By Course and Student Demographics

SEE Gender, Race, and Pell Tabs

2B3. The data may indicate a pattern of inequities (in gender, race, or Pell eligibility) in student enrollment or success. Please clearly explain how your program intends to explore content/curriculum, pedagogy/teaching, course material selection, etc. using culturally responsive teaching approaches throughout the next year. Try to identify a realistic one year goal.

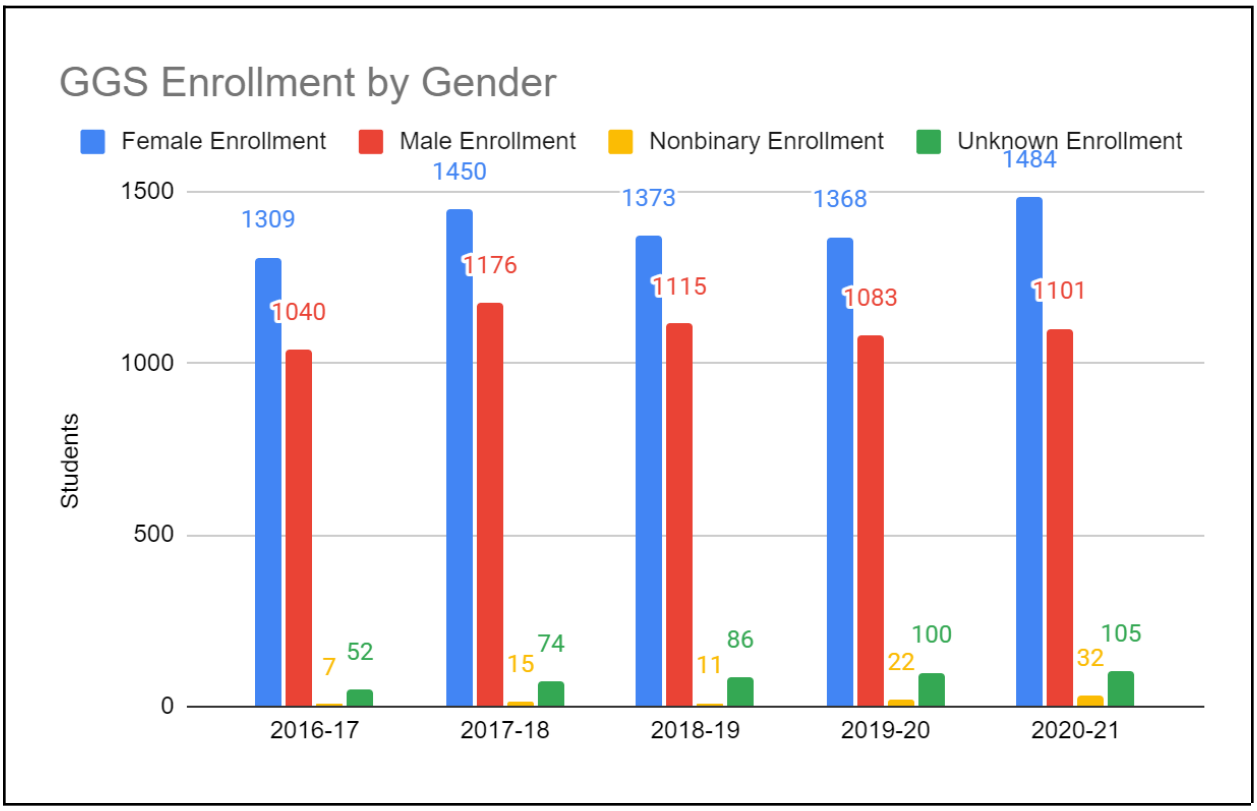
Enrollment by race and ethnicity in courses offered by GGS closely matches enrollment by race and ethnicity at the college level for the 2019-2020 academic year (Appendix A, Chart 10). Students who are white are overrepresented in GGS by seven percentage points compared to the whole college, students who are Asian are underrepresented by three percentage points, while students who are Black/African American, Latinx/Hispanic, Native Hawaiian/Pacific Islander, International, and Multiracial are all within one percentage point. Enrollment by students who are Native American/Indigenous is equivalent, at 0.7%



Success rates in student populations who come from historically marginalized/oppressed communities that make up less than 5% of the enrollment in GGS courses have a significant impact on the volatility of success rates between 2016 and 202 (Appendix A, Chart 11). Success rates for students who are Black/African American had been on a downward trend, starting from

73.8% in ‘16-’17, which was slightly below the average success rate, in ‘18-’19 it was 67.3%, and dropped to an alarming 56% in ‘20-’21, despite enrollment numbers remaining steady throughout the entire sampled time window. We attribute the drop below 60% to be a reflection of the unequal impact of the COVID-19 pandemic on students who are Black/African American. The longer term decline may be attributed to increased availability/enrollment of OL/DL-designated courses, which have overall lower success rates (see Section 2b1a). Another example of the uneven impact of the pandemic on students who come from marginalized/oppressed communities is the noticeable drop in Native American/Indigenous success rates (Appendix A, Chart 11). Enrollment of Latinx/Hispanic students increased in GGS courses (Appendix A, Chart 12b), and success rates follow the average GGS success rate.

Female student enrollment in courses offered by GGS has consistently remained between 55 and 56%, which reflects the enrollment trend at the college level, which is 53% female, 44% male (pcc.edu/about/demographics, accessed 11/28). Success rates between male and female students are within one percentage point of each other for the sample window, however male success rates are higher (Appendix A, Chart 13). These data do not permit us to identify whether this difference is the result of content/curriculum, pedagogy/teaching, course material selection, or external/societal conditions. Nonetheless, it is an observation that can help GGS better serve students who enroll in our courses.



We looked at enrollment and success rates for Pell eligible students and we didn't see any significant difference with non-Pell eligible students, so we didn't pursue Pell data further.

2B4. What support does your SAC need to fully explore inequities in enrollment or student success? For example, are there any other data reports you would find useful to have related to student success?

We would like to conduct a technology access and literacy study by race, ethnicity, and gender in OL/DL courses because of the coincidence of a decline in success rates that has accompanied the rise in OL/DL course offerings.

SECTION 3: REFLECTION ON ASSESSMENT OF STUDENT LEARNING

3A. Assessment Reports

Please note: The following questions link directly to your Annual Learning Assessment Reports for the Learning Assessment Council. Feel free to cut and paste between this document and your other assessment documentation.

3A1. Which student learning outcomes from your SAC's available courses will you assess this year and will you use direct assessment strategies?
(These can be larger, program-level outcomes or course-level outcomes from your CCOGs).

Our assessment will focus on earth science skills students need to demonstrate their ability to meet the following course outcomes in a quantitative manner:

> **G 147** "Explain how the geologic features of the national parks in the United States formed using an understanding of the rock cycle, plate tectonics and surface processes."
>
> **G 148** "Explain the variety and geographical distribution of volcanoes and earthquakes using an understanding of plate tectonics."
>
> **GS 106** "Explain how the Earth's surface wears away and is renewed using an understanding of the rock cycle, plate tectonics and surface processes."
>
> **G 201** "Explain the geographic distribution of Earth's earthquake and volcanic activity using an understanding of plate tectonics."

Students will be assessed on their ability to explain the formation of an ocean island chain (Hawaii) using their understanding of plate tectonic

The specific skills we will be assessing include:

1) Using the scale bar on a map to determine the size of geographical features on the map.
2) Relating the geographical distribution of a chain of hot spot volcanoes to the motion of the tectonic plate on which they occur.
3) Calculating the rate at which a tectonic plate moves.
4) Comparing geological rates determined on human time scales (e.g. GPS measurements) to those determined using geological evidence on geological time scales (e.g. hot spots tracks)

We will use a direct assessment strategy.

At this point our SAC is just starting to develop “larger program-level outcomes”. Would it be possible to focus next year’s assessment on developing these “larger program-level outcomes” or to get a course reassignment for one of our full time faculty to manage the development of program-level outcomes?

3A2. Which courses do you plan to assess this year; how and why will your SAC choose the sections?

See question 3A1 for the courses we are assessing. We will be assessing every section of each course for completeness and to avoid possible sampling problems.

3A3. In general terms, describe the assessment project for the year from implementation to data collection. What steps will you take in carrying out the project?

1) Develop questions addressing the assessment goals described in the previous question.
2) Review of the assessment questions by instructors teaching G 147, G 148, GS 106, and G 201 and our assessment coach, Gayatheri Iyer.
3) Revise the assessment questions.
4) Post the revised assessment questions to the SAC D2L shell in D2L quiz format.
5) Road test the assessment assignment in D2L format by having instructors teaching G 147, G 148, GS 106, and G 201 in Winter 2022 complete the assignment in D2L and provide feedback on the D2L experience.
6) Develop and trial run the following: a Google Form for collecting results, exporting the results using D2L quiz tools, the answer key, and plotting assessment results using the results of our instructor road test.
7) Create final version of assessment assignment questions and post to SAC D2L page in quiz tool format and in content page format along with answer key.
8) Instructors download assessment assignment questions from the SAC D2L shell into their section shells.
9) Instructors incorporate assessment assignment questions into a graded assignment in their Winter 2022 sections of G 147, G 148, G 201 and GS 106 using the D2L quiz tool.
10) Instructors assign the assessment, and grade student work.
11) Instructors report results to the SAC assessment coordinator (Eriks Puris) by filling out a Google Form and by exporting results as an excel spreadsheet using the D2L test tool.
12) Assessment team tabulates, graphs and analyzes results.
13) Further investigation of low success rate questions and responses. Student responses are analyzed for common mistakes, misunderstandings, and misconceptions. Questions are analyzed for clarity and quality.
14) SAC-wide discussion on meaning of results and possible strategies to improve student learning and assessment results possibly during the spring in-service meeting.
15) Complete LDC Annual Assessment/Reassessment Plan and Report 2021-2022 and submit.

3B. Response to LAC Assessment Question

Please respond to the question below, which relates to your SAC's 2020-2021 Learning Assessment Report to the Learning Assessment Council (LAC).

Commendations: Obviously a lot of work by the members of the G & GS SAC has gone into student assessment as well as attempting to get as many members of the SAC involved in the process as possible, and trying to conduct the process in a scientific manner - this is extremely commendable particularly during this past difficult year!

Suggestions: The peer reviewers can understand the concern of your SAC members about distribution of signature assignments, but wonder if with the complex nature of the written questions and representation, is it critical that the students never see them posted as long as a key is not available? (do they need to be timed, etc?) We hope that you can come to a solution to get all of your faculty and courses involved! The student results from GS 107 this year were very encouraging and it would be great to know in your future reports if you are making any instructional changes in your curriculum that are leading to these improvements.

Question: How did you close the loop to make this happen? How will you close the loop to get your other faculty on board?

SAC Response:

Many members of the SAC have demonstrated a high level of concern when it comes to academic integrity. Knowing that internet sites like Chegg and Course Hero are providing potentially robust responses to questions on our signature assignments is particularly concerning. The development of these assignments required a huge amount of time and energy. If they are truly to gauge student achievement in quantitative reasoning, then knowing that students can simply download another former student's work is a big problem. Plagiarism in this instance does not lead to a true representation of student achievement. Having to go through the trouble of building all new assignments every other year because of plagiarism is an unsustainable expectation. Having to modify the assignment when using real world maps and data would also require a massive amount of time and effort. Our faculty members involved in the development of the first signature assignments would like to feel comfortable knowing that these initial assignments will be useful General Education indicators of student achievement, and that their efforts will support PCC for a fair amount of time into the future. We stand united in our opinion that the online plagiarism issue needs to be addressed, and we look for guidance from administration to assist us in minimizing this problem.

The online version of GS107 has undergone some changes within the last few years. Online instructors of GS107 have been utilizing the modified shell. Remote instructors of GS107 since Covid have at least partially used the OL/DL materials which were shared when the pandemic

struck. The OL/DL curriculum incorporates numerous quantitative reasoning activities throughout the OL/DL course. An introductory activity assigned during the first week has been added to ensure students feel comfortable applying math skills to solve Astronomy related problems throughout the term, and to alert instructors to students who may need extra scaffolding in order to succeed in the class. These activities have already suggested additional improvements that can be made to the class to bolster quantitative skills required to meaningfully and successfully navigate the lab assignments.

Realistically, we have struggled to communicate changes to our curriculum with one another. When writing the assessment project in June each year, the assessment lead had minimal opportunity to discuss curriculum changes as a result of assessment. The report was written without this information, and the SAC has struggled year after year to effectively document closing the loop on assessment. Looking back, it is highly likely that other improvements to teaching strategies and materials have been made in light of our assessment results regarding quantitative reasoning. Unfortunately, timing and opportunity appear to have been missed much like the example demonstrated here. Thinking forward, it might be a good idea to assess during the fall term, analyze results during winter, and prepare the annual report before the spring term ends. This would allow the SAC to discuss results at the spring SAC meeting and specifically address curriculum changes to assist in closing the loop like the GS107 example highlighted above. Several instructors have recommended in the past that we should consider running our assessment project during fall term keeping in mind the extra week in the academic calendar. This could be a point of discussion at our next SAC meeting that might make a difference when closing the loop every third year using the new LAC process.

SECTION 4: ADDITIONAL ACHIEVEMENTS, CHALLENGES or OPPORTUNITIES

4A. Is there anything further you would like to share about your program's achievements at this time?

Online Learning: GGS SAC increased SFTE and overall student enrollment in courses offered between 2016 and 2021. This is in part due to the creation of three new OL/DL classes, all of which experienced growth due to the flexibility of OL/DL courses and the high demand that exists for 4-credit science lab courses in this modality. GS 107- Astronomy and G 148-Volcanoes and Earthquakes were developed by FT faculty, while G 184- Global Climate Change was developed by PT faculty. GGS was successful in acquiring funds through The Instructional Improvement Project (TIIP) for G 184 and through support from the OL/DL office for G 148. Revisions for G184 have been done entirely by PT faculty and G 148 has involved a mix of PT and FT faculty. Maintaining existing classes, especially ones focused on current topics in geosciences, such as climate change, volcanic eruptions, and earthquakes requires constant updating in order to avoid falling behind the current state of each discipline. Needing to rely on PT faculty to do these updates is unsustainable.

Success Rates: GGS offers a great diversity of courses for PCC students to learn about the various components of Earth's system and its place in the Universe. The course catalog includes ten 4-credit, three 3-credit, two 2-credit, and six 1-credit courses for both Geology and General Science. The sampled courses in the update demonstrate a high success rate for onsite instruction. We hope to address the drop in success rates described in section 2 by increasing the proportion of hybrid course offerings and constantly improving OL/DL courses.

Experiential Learning: As we return to onsite instruction, the GGS SAC is committed to exploring avenues for providing expanded opportunities for students to participate in experiential learning. E. Guerrero is a part of a multi-institution and interdisciplinary NSF-funded project which will provide PCC students with the opportunity to participate in paid week-long field workshops that explore the connection between volcanoes and glaciers in the Oregon Cascades in '22, '23, and '24. We did not explore existing field courses in this ADU; however, we are interested in re-establishing the 1-credit field courses that were offered during the academic year and expanding offerings during the summer months. We hope that the NSF-funded program will provide momentum to attract enrollment. GGS will need support from PCC by providing consistent access to transportation options in order to provide equitable access to experiential learning for all students. It would be helpful to develop college-wide protocols for health and safety of field trip participants, and a mechanism to support faculty who generally offer field trips and experiential learning outside of contract time. Vans are essential in extending STEM learning from the lab to our community and the real world

The experiential learning that occurs during class time is also important, and it could be that adding a greater experiential learning components to onsite and online courses (e.g. lab kits the students rent or scavenger hunt type activities- star counts of the night sky, weather

journals, taking photos of examples of climate change or mass movements in your community, participating in citizen science, community based learning with local watershed groups.).

4B. Are there any challenges not described above that you would like to note here?

Staffing: We are very concerned about staffing levels for Geology and General Science because 67% of our courses are taught by part-time faculty (Appendix A, Chart 14a). This number alone is alarming, however, our concern is heightened by the recognition that 45% of all GGS courses are taught by part-time faculty who identify as female (Appendix A, Chart 14b), reflecting a trend in STEM fields of having women scientists wind up in underpaid adjunct positions. Currently, the SAC has three full-time faculty who are male and one full-time faculty who is female, and a PT faculty team that ranges from 10-14, depending on enrollment and the academic term. This staffing situation is unsustainable. Geology and General Science SAC has equivalent SFTE to the Physics SAC (Appendix A, Chart 1) and higher total enrollment (Appendix A, Chart 2), yet Physics has seven full-time faculty, according to their '19-'20 ADU. This indicates that GGS has been overperforming compared to a similar-sized program by asking FT faculty to carry an ever-increasing and outsized administrative burden and by relying on PT faculty to take on non-teaching duties normally done by FT faculty.

Uneven Lab ISTs availability for GGS courses throughout the four campuses means that it is common for PT and FT faculty to prep and clean lab spaces in addition to their teaching. We hope that the college reorganization will include consistent and equitative lab support for GGS course offerings. Ideally two FT Lab ISTs who have specific preparation in the geosciences could each support lab needs for campuses on the east side and west sides of the Willamette river respectively.

G184-Global Climate Change is a class that has experienced steady growth in SFTE since 2016, and we feel that it is of the utmost importance to add at least one FT position for a colleague whose expertise is specifically focused on climate science (particularly atmospheric or ocean sciences) in order to maintain currency in a rapidly evolving field of study. It is unsustainable to continue to rely on PT faculty to do this work without the appropriate compensation and support that comes with full-time employment.

Geology and General Science needs additional full time faculty to sustainably support, update and improve its diverse course offerings. Roughly ⅓ of our SFTE is concentrated in three climate science courses (G184, GS 108, GS 109; see Appendix A chart 15) yet none of our full time faculty have a primary expertise in this field. Adding two full time climate science instructors would fundamentally transform PCC's ability to teach climate change literacy and bring the GGS SAC closer to parity with the Physics SAC. A duo hire will allow the new hires to support each other as they navigate the PCC onboarding process and will give the hiring committee flexibility in working towards achieving PCCs hiring DEI goals.

GS 107- Astronomy is another class that experienced steady growth in SFTE, particularly after the OL/DL version of the class was created by Melinda Hutson, whose background is in Planetary Science, which bridges the fields of Geology and Astronomy. Melinda will be retiring

within the next two years and we feel that it is important to maintain a FT position in Planetary Science in order to keep up with new discoveries in Astronomy and Planetary Geology.

Best Available/Teaching Portfolio: Members of the GGS SAC are concerned about the impact on PT faculty of the “Best Available Instructor” and “Teaching Portfolio” initiatives. While we currently don’t know the status of these initiatives, the SAC feels that the roll-out of the initiative caused unnecessary stress. Whatever the final iteration of these initiatives, we hope that SACs are able to have a voice in the process.

4C. Do you see any opportunities in the near or long term that you would like to share?

The COVID-19 pandemic, college reorganization, and last year’s extensive ADU provided an opportunity for the SAC to view a variety of programmatic issues in a new light. These situations encouraged us to think about our program holistically as opposed to a collection of Geology and General Science courses. The GGS SAC is looking at large-scale programmatic changes in order to better serve our students, to create a more coherent program with less overlap from course to course, and to align with changes transforming the geoscience sector. Most PCC students have no prior exposure to geoscience. We are exploring the creation of a new geoscience introductory course examining the role of geoscientists in solving community issues, while developing skills needed in all science classes. This course could be used to meet the MTH prereqs of the remaining GGS courses. Additional programmatic changes include elimination of some current classes, increasing some math prerequisites, and possibly adding 200 level courses in climate and planetary geology.

Our SAC seeks to develop labs utilizing campus adjacent field locations accessible to on campus students during scheduled class time and virtually to online students. Currently, students must provide their own transportation for field trips. This pivotal learning experience would be accessible to all students who register for a GGS course if PCC supported van transportation for field trips.