

Geography Program Review | Annual Program Update | 2021-2022

PART A

SECTION 1: BASIC PROGRAM INFORMATION

Program Name: **Geography-GIS**

Program Faculty Department Chair(s): Christina Friedle

Program SAC Chair(s): Christina Friedle & Lauren Hull

Program Dean: Dana Fuller

Pathway Dean: Dan Wegner (Interim)

Please highlight where your classes are offered.

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

1A. Program Structure

Do you have a Competitive Entry or Admissions Process?

- Competitive, based on admission criteria
- Competitive due to limited capacity, based on order of application
- Open entry
- Other _____

Key Definitions used in APU

Since the Geography program has both LDC & CTE, we feel it is important to note how the two are combined and differentiated throughout the report.

Geography | Includes all courses listed under GEO and fully represent the Geography SAC offerings.

Geography LDC | Includes all classes that are Human, Physical, Regional, or Thematic Geography courses and are also Social Science General Education courses. There are two exceptions to this - Geo 170 & 265, both of which are Gen Ed courses are grouped together with the CTE/Geospatial courses since they are focused on Geospatial topics and are a part of the CTE program requirements.

Geography CTE/Geospatial | Includes all classes that are part of the GIS Certificate, and beginning Fall 2021 part of the Geomatics AAS and Geospatial UAS Certificate.

SECTION 2: REFLECTING ON DATA

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

2A1. Does this data suggest any questions that the SAC would like to pursue?

Analyzing the data provided by IE is always an interesting endeavor that allows for asking questions to understand why certain patterns emerge. Below are a list of some questions that arose while looking at data from the last five academic years.

- **Question 1 - Geographic Bias** | Is there a particular reason that the majority of classes are offered in both westside campuses (Rock Creek & Sylvania)?
 - ◆ SFTE and enrollment numbers clearly indicate that the Geography program is biased to the west side of Portland, with most course offerings and highest SFTE at Sylvania campus, which houses the GIS program, and Rock Creek, which has had a relatively consistent full time faculty representation. There will always be a bias towards Sylvania because our Geospatial programs are housed there with the necessary labs & equipment. However, the SAC would like to distribute Geography LDC courses more evenly across east and west side campuses, and also extend where possible our introductory geospatial courses (GEO 170 and 265).

- **Question 2 - Diversifying Modalities** | Where can more hybrid/blended and on-line courses be incorporated into Geography teaching modalities?
 - ◆ Remote operations have provided insights in two areas: (1) that many courses have potential to be fully on-line and (2) hybrid-style courses which are effective in remote operations could return to on-site operations as true hybrid/blended courses. Prior to COVID-19, the primary modalities of Geography courses were on-site or on-line (with the exception of GEO 267, a CTE course offered as hybrid/blended). Of those modalities, a majority of on-line course offerings were for LDC courses, while only GEO 170, our introductory CTE course, is offered on-line.

- **Question 3 - Remote Operations** | Has remote operations increased student access to, and enrollment in, Geography courses? In particular, are more students enrolling in CTE programs due to the increased schedule flexibility of remote learning?
 - ◆ 2020-2021 has seen a significant increase in SFTE (164.6) compared to previous years, except for the 2017-2018 academic year (169.7) for all Geography courses.

We are curious about this increase and would like to better understand the variables that affect remote versus in-person learning.

2A2. Do the data suggest adjustments be made in your program, 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?

Course Distribution by Campus

Over the past 5 years Sylvania campus has had the highest enrollment in regards to SFTE, accounting for an average of 57%. Rock Creek accounts for approximately 35% of SFTE, and Cascade and Southeast each account for ~4%. This disproportionate enrollment can be attributed to the Geospatial CTE programs housed on Sylvania’s campus and the supporting on-site full-time faculty, as well as having a large portion of LDC Geography courses taught by part-time faculty. Rock Creek, with the second highest SFTE enrollment, is the only other campus with a full-time faculty member. Courses at Cascade and Southeast are taught by part-time faculty and the schedule has been managed by FDCs from disciplines other than Geography.

Table 1 SFTE by Academic Year and Campus (AY 2016-2021)					
Academic Year	Total SFTE	Cascade	Rock Creek	Southeast	Sylvania
2016-2017	150.8	6	56.1	7.7	81
2017-2018	169.7	5.9	60	8.1	95.6
2018-2019	153.2	4.9	58.4	6.1	83.8
2019-2020	139.6	5.6	53.6	5.3	75.1
2020-2021	164.6	5.9	46.2	6	106.5

Course Distribution by Modality

It’s important to distinguish on-site and on-line modalities in discussing enrollment and access to individual campuses and the courses offered there. In remote operations, campus assignments are less of a barrier to students enrolling in courses and programs, however, as we

pursue a thoughtful return to on-campus operations, students will benefit most from course offerings on campuses near their communities. The total SFTE of Geography course offerings with on-site components (aggregating on-site, blended, and hybrid) pre-COVID are listed in Table 2.

Table 2 SFTE by Academic Year and Modality (AY 2016-2021)				
Academic Year	Total SFTE	On-site component* SFTE	On-line SFTE	Remote SFTE
2016-2017	150.8	96.7	54.2	n/a
2017-2018	169.7	112.6	57.1	n/a
2018-2019	153.2	99.5	53.5	n/a
2019-2020**	139.6	64.1	53.3	22.5
2020-2021**	164.6	n/a	40.9	123.6

*On-site components are any classes with on-site interactions, including face to face, hybrid, and blended courses

**Not included in 3 year averages of on-site SFTE due to transition to remote instruction

Sylvania’s courses on a three-year average (AY 2016-2017, 2017-2018, and 2018-2019) represent more than 59% of on-site SFTE. Rock Creek represents ~26%, whereas Cascade and Southeast each account for ~6% and 8% of SFTE respectively.

Solutions: Course Distribution by Campus & Modality

Geography course offerings should be evenly distributed between eastside (Cascade and Southeast) and westside campuses (Sylvania and Rock Creek). For example, if two in-person sections of our most highly enrolled course, GEO 105, are offered per term, these courses should be distributed between east and west side campuses (for example, one at Rock Creek, and one at Southeast). This can be achieved by splitting full-time and part-time faculty load across campuses, moving a full-time faculty appointment to an east-side campus, and/or providing more on-site support (such as office space, travel reimbursement, etc) for any faculty teaching on multiple campuses.

Reorganization under the One College model provides more opportunities for relationship and capacity building across campuses. Centralized scheduling for Geography will help our faculty serve more diverse student populations and ease the travel burden on part-time faculty.

Re-distributing Geography courses supports YESS efforts, potentially increasing retention and completion rates by providing more options for General Education (thirteen courses) and Cultural Literacy (nine courses) designated courses, which can help students complete AAOT transfer and Focus Awards requirements. At this time, Geography is included in five of the thirteen focus awards, and is working to expand into another four awards.

Preserving remote learning opportunities, as it is currently prioritized by the college, also increases student access to Geography courses. However, staffing limitations may pose challenges when considering geographic distribution and modality types (on-site components vs. on-line vs. remote). Increased staffing may be needed to better accommodate an equitable distribution of courses by location and modality.

Diversifying Modalities

Increased funding and training for both hybrid/blended and on-line course development, as proposed in the Short Term Online and Remote Investment (STORI) initiative launched in Winter 2021, would allow the Geography program to serve more students while reducing in-person contact on campus as we return to on-site instruction.

Table 3 illustrates opportunities for additional modality development of LDC and CTE courses. Though not reflected in existing data (we may be able to extrapolate with more details in remote SFTE) , many Geography faculty have adopted “hybrid-style” teaching methods while in remote operations, having some asynchronous materials in our LMS and one weekly synchronous class meeting. Currently, the only designated course which was hybrid pre-pandemic was GEO 267 and sees comparable success rates to other courses and modalities (see Section 2B) . For Spring 2020, GEO 105 had one section that was scheduled to run as a hybrid course, but push to remote operations prevented on-site components from taking place (SFTE=0.8 in Table 3). It appears it’s SFTE was not labeled as remote for Spring 2020, and maintained hybrid status despite being a remote modality.

Additionally, rapid evolution of LMS technology and it’s related accessibility components means our faculty would benefit from on-going training in LMS opportunities. Many already attend training and have incorporated accessibility minded updates such as ableplayer video playlists into their courses to support our remote learning students.

Table 3 SFTE by Modality: LDC vs. CTE (AY 2016-2021)								
Academic Year	On-site SFTE		On-line SFTE		Hybrid/Blended		Remote	
	LDC	CTE	LDC	CTE	LDC	CTE	LDC	CTE

2016-2017	42	51.2	54.2	0	0	3.5	n/a	n/a
2017-2018	41.4	66.4	57.1	0	0	0	n/a	n/a
2018-2019	36	57.4	50.4	3.1	0	4.3	n/a	n/a
2019-2020**	24.7	40.4	51.1	2.2	0.8*	3.2	8.1	14.4
2020-2021**	n/a	n/a	36.5	4.4	n/a	n/a	30.9	92.6

* GEO 105 scheduled as hybrid before remote operations in Spring 2020, but push to remote prevented teaching a true hybrid modality

** SFTE for these AY is reduced or absent due to transition to remote operations

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 program?

Information on demographics by campus would support YESS work both college wide and in addressing equity gaps within the success patterns for GEO courses. The west and east sides of the Portland Metropolitan area have different demographics. It would be beneficial to have information not only for Geography demographics by campus, but also college-wide data and demographic data surrounding each campus to better understand the potential student population. This would allow us to thoughtfully schedule classes to meet the needs of individual campuses.

2B. Course Success Rates

% Success By Course and Modality

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?

Overall, there are no specific classes that have success rates significantly lower or higher than the others. There is some variation, discussed below, however we do not feel that there is any one course that needs to be given more attention.

Our Geospatial CTE courses had an overall success rate of 88% over the last five years, and 87% in the past three years. Of our Geospatial courses, Geo 170, Maps and Geospatial Concepts, is the only course offered fully online. From 2016-17 to 2019-20, online success rates for GEO 170 were lower (72% - 81%) than onsite success rates (81% - 93%), however during 2020-21 academic years, the online success rate was slightly higher (88%) than remote modality (87%).

Two of our Geospatial classes stand out with success rates over 90% in the past five years - Geo 223, GPS Theory & Design and Geo 252, Geospatial Modeling with Drones I. Over the last 5 years, most Geospatial courses maintain success rates over 80%. During the 2019-20 academic year, some courses had lower success rates, such as Geo 170 (78%), Geo 242, GIS Programming (77%), Geo 246, Remote Sensing (73%), and Geo 266, GIS Analysis (76.1%). Geo 221, The Local Landscape, had the largest variation of success rate, ranging from 62% to 94%. Geo 265, Intro to GIS, had success rates under 80% in the 2019-20 academic year (74%) and in 2018-19 (77%).

The LDC course with the highest success rates is Geo 202, Geography of Europe (86% - 93%). In the past three years, LDC courses have seen improving success rates college wide, from 83% (2018-19) to 85% (2020-21). Online courses had the highest approval rate in 2020-21, comparing data from the past three years, with 86% of success. Courses that had lower than 70% of approval were Geo 204, Geography of Middle East (53% in 2017-18) and Geo 230, Geography of Race and Ethnicity (67% in 2017-18).

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?

Overall, the success rates for Geography class is fairly consistent across modalities and years, with an average rate of 86% over the last five years. Online courses have a slightly lower success rate at 81% and onsite/F2F courses have a slightly higher success rate at 88%.

LDC courses' overall success rate ranged from 82% in the last five years, and 83% in the last three years. Hence, there is a slight increase of success (1%) in recent years. Online success rates increased from 81% (five years) to 83% (three years). Onsite success rates decreased from 85% (last five years) to 83% (last three years) . In CTE courses, there was a 1% change, declining from 89% (last five years) to 88% success rate (last three years).

Our Geospatial CTE courses require access to computers with specialized software. The GIS Computer Lab on campus typically provides support to students who do not have access to a viable computer outside of the college. With the support of the NSF grant, the Geography department was able to provide loaner laptops to students. We also worked with IT to set up virtual access to campus computers using Splashtop. Therefore, students were able to continue in our Geospatial programs without accessing the campus computers. The enrollment data shows an initial struggle in remote courses, as the 2019-20 academic year had the lowest success rate of 73%. However, in the 2020-21 academic years, the success rate for Geospatial courses was 89% and also had the highest enrollment rate in five years.

LDC courses have a diversity of online, onsite, and remote courses. Remote courses started in Spring of the 2019-20 academic year with COVID-19 pandemic. Eleven of our twelve LDC courses are offered as online courses. The only courses we have not developed for online is our Geo 206, Geography of Oregon and GEO 209, Climate Change and Human Systems. There are

two courses - Geo 204, Geography of the Middle East and Geo 230 - Geography of Race and Ethnicity - that are currently only offered as online courses. The plan is to develop these four courses to have more than one modality, adding either online courses or some combination of remote/onsite/hybrid courses.

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.

To maintain high success rates, faculty attended several workshops on developing effective instructional strategies. Workshops and efforts included development of online courses, transparent assignment design and rubric development, course restructuring for remote classes, and updates of course materials. Most Geography courses, in various modalities, have adopted culturally responsive teaching that seeks to achieve active learning, reflection, and stimulates critical thinking. Studies have shown that instructor presence, especially in online/remote learning environments, is one of the key factors for student success, as well as cognitive presence and social presence.

To prevent low success rates, more Geography courses need to adopt teaching strategies that diminishes the feeling of isolation for diverse students. Studies have shown that students, especially those who are coming from diverse backgrounds, lose motivation when they feel disconnected from their instructors and peers. Course design that focuses on using appropriate communication tools for student-instructor/student-student interaction may increase possibilities to build learning communities that motivate students to learn and achieve stated learning outcomes.

In the remote environment, the use of the Breakout Rooms and Jamboard were helpful to engage students. Breakout Rooms are a resource on the Zoom platform that allow students to work with peers in small groups in a remote environment. As courses are recorded and managed by a third party organization (Zoom Video Communications), there is a general privacy concern for using camera and audio. In the Breakout Rooms, the video is not recorded, which can engage students to interact with peers. Google Jamboard is another technology support to motivate participation in remote learning. Mimicking a blackboard, participants can add text, images, and stick notes to brainstorm, share thoughts, and collectively work in class assignments.

Learning materials and activities for the courses should be designed to keep students engaged in a community of inquiry. Collaborative learning helps students build a learning environment where they can share ideas to build critical thinking and problem-solving skills. Students support

each others' learning while they work together by sharing knowledge and providing and receiving feedback for each other's work. Active learning strategies, such as reflection activities, motivate students to learn course content that is relevant to the real world. Most Geography learning activities require students to reflect on what they have learned in course materials to make meaning about the real world issues.

Class discussions that contextualize Geography topics have been explored in our courses. For example, in the last two academic years, COVID-19 themes were applied to class materials. Class topics discussed the impact of the pandemic on vulnerable communities, combination of vulnerability factors, such as natural disasters (wildfire, storms) and pandemic vulnerability, and the use of Geospatial technology to monitor COVID-19 cases. Awareness for real world issues were not only related to COVID-19. In projects in our Geospatial courses, students explored topics related (and not limited) to:

- Homelessness, safety, public health, and distribution of resources
- Environmental and food justice
- Public perceptions of social justice through landscape observations (signs, murals, public interventions for construction of space)
- Vulnerability to wildfires and forest management in the west

Geography faculty continue to innovate and motivate students to find their identity, elevate their voices, and inspire their communities with the knowledge obtained through the classes. A constant challenge that we observe in the classroom is a lower participation rates of non-white male students, which represents the majority of the enrollment rates. In the 2020-21 academic years, the Geospatial team participated in a training to develop strategies to better engage females and non-binary students in the classroom, as well as how to target marketing efforts towards this underrepresented group in the Geospatial field. After the training, faculty started an internal brainstorm on how to explore gender and racial diversity in the Portland Metro Area context. The local progressive policies have initiatives, such as women professional associations, mentorship for students of colors, and nonprofits that are potential partners for geospatial projects with students.

One realistic goal for the next year is to engage faculty in opportunities available through the Center for Teaching and Learning Excellence and Online Learning such as, Building Inclusive Syllabi, Anderson Conference, Internationalization Workshops, Finding Social Connection series, Quality Matters program, and the Online Learning Consortium. While many of our faculty actively engage in Professional Development opportunities available through the CTLE and Online Learning, we would like to see all faculty participate in at least one of these workshops.

Enrollment and % Success By Course and Student Demographics

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.

College-wide data on gender enrollments from the last five years shows that the majority of the students enrolled in Geography LDC and geospatial programs are male students. Nonbinary/unknown gender student enrollment has increased steadily for the last four years in both Geography LDC and CTE programs.

Figure 1 | Geography Enrollments by Gender (#s)

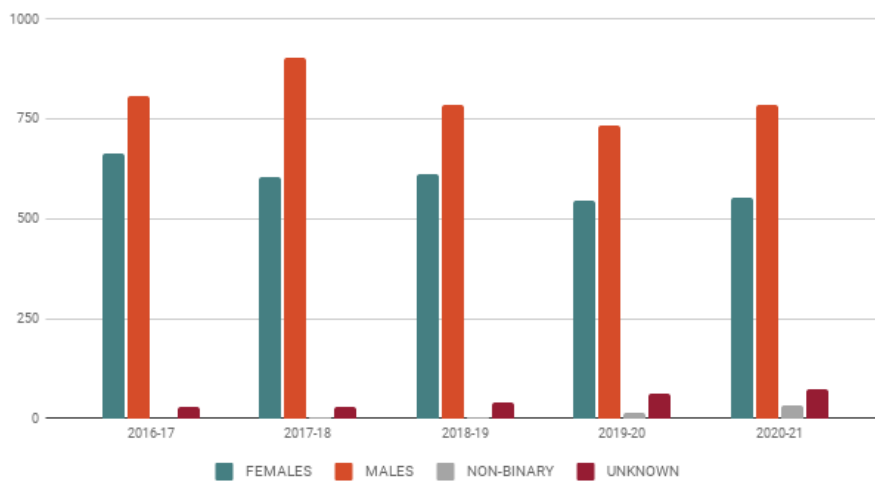
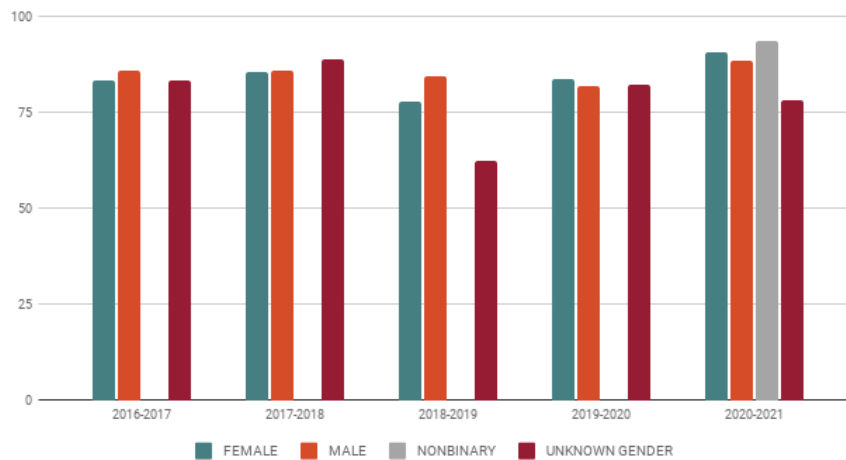


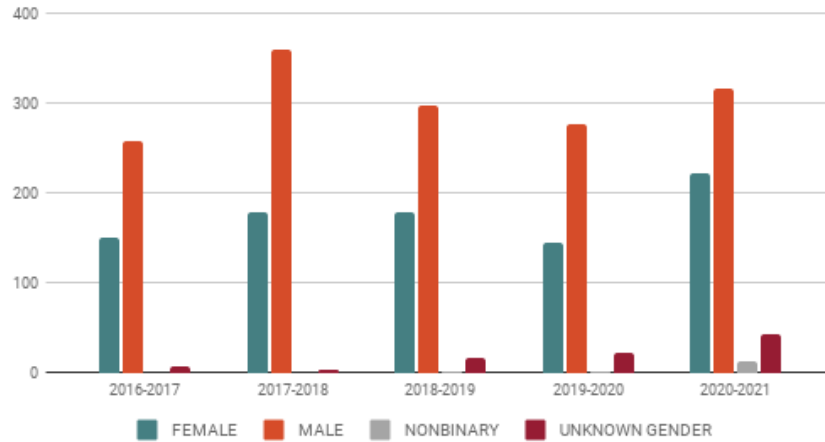
Figure 2 shows that male students have a slightly higher success rate than other genders.

Figure 2 | Geography Success Rates by Gender (%)



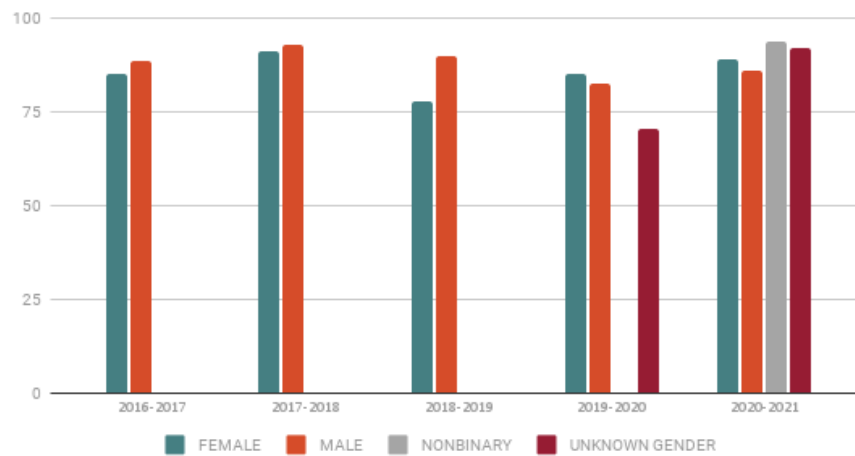
However, the enrollment for female, nonbinary, and unknown gender has increased over the last five year, especially in geospatial program.

Figure 3 | Geospatial Course Enrollments, by Gender (#s)



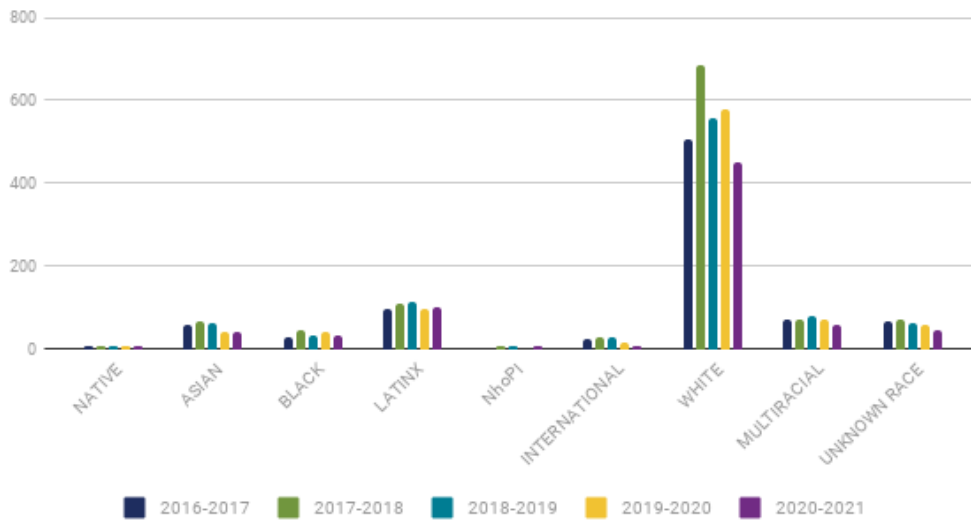
The success rates for those genders has increased well for the year of 2020-2021.

Figure 4 | Geospatial Course Success Rates, by Gender (%)



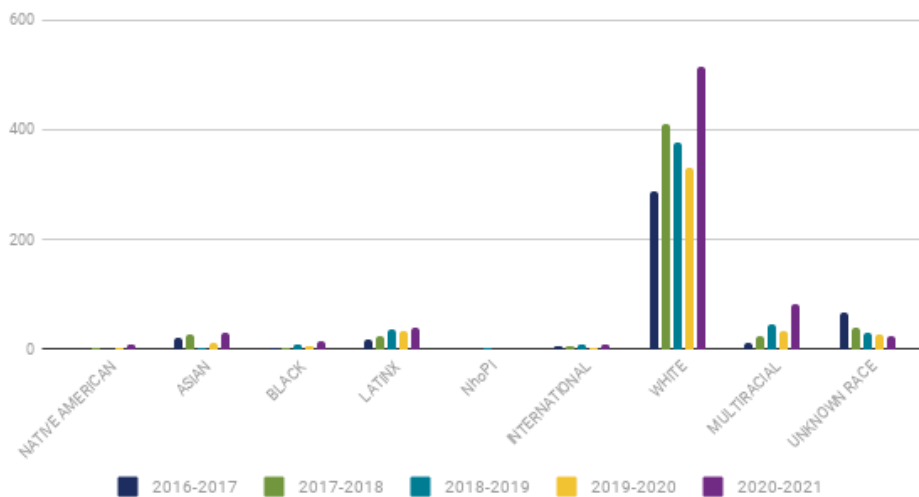
College-wide data on ethnicity and race enrollments from the last five years shows that the majority of the students enrolled in Geography LDC and geospatial programs are white students. LatinX, Multiracial, and Unknown races follow the second, third, and fourth most enrolled ethnicities and races. There are a small number of black, Asian, and international students enrolled for the both programs, but they are minorities. There are a few number of Native American students enrolled as well. The enrollment numbers for international students have declined dramatically for the last two years, especially in the Geography LDC program.

Figure 5 | Geography Enrollments, by Race & Ethnicity (#s)



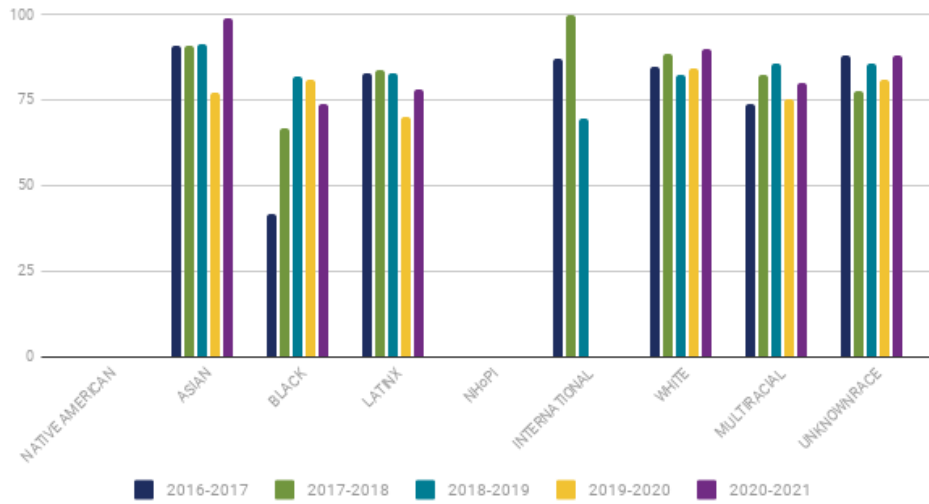
The enrollment numbers for the Native American students in the geospatial program have increased in 2020-2021. Data shows that there is a few NhoPI enrollment for Geography LDC courses, but almost none for geospatial courses.

Figure 6 | Geospatial Course Enrollments, by Race & Ethnicity (#s)



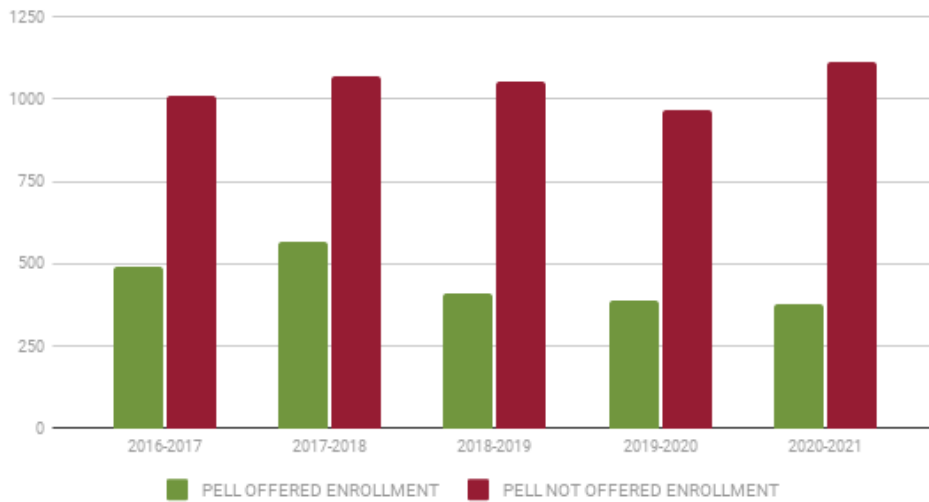
There is a steady high success rate for Asian and white students in all Geography courses. The success rate for multiracial, Latinx, and Unknown races has also been high, but compared to Asian and White students, they have lower success rates. The lowest success rates are documented among the Native American, NhoPI, and Black students. The enrollment for those ethnic/racial groups are the lowest as well.

Figure 7 | Geography Success Rates, by Race & Ethnicity (%)



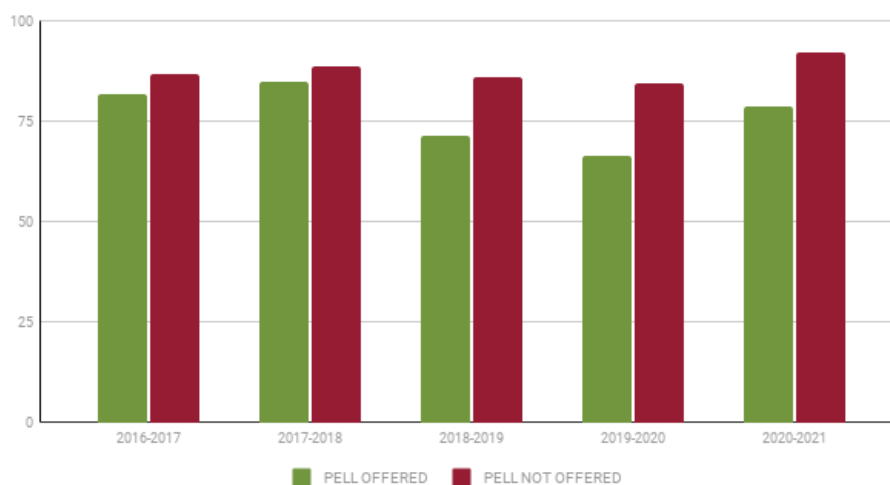
College-wide data on Pell eligibility enrollments from the last five years shows that the Pell offered enrollment for Geography LDC and geospatial programs has declined since 2018-2019. Pell not offered enrollment for the both programs have steady numbers, except for the 2020-2021 year.

Figure 8 | Geography Enrollments, by Pell Grant (#s)



The success rate for Pell not offered students is higher than the Pell offered students (figure 9).

Figure 9 | Geography Success Rates, by Pell Grant (%)



Almost all Geography courses adopted a curriculum and pedagogy that is culturally responsive. The content of Geography courses addresses ecological and social justice issues for all genders, races, and ethnicities with diverse economic backgrounds throughout the world. Students with diverse backgrounds can easily relate to the content of Geography courses. Assignments are designed to explore students' own cultures and cultures of other peoples and places. Most Geography LDC and two Geospatial courses fulfill the General Education requirements for Social Inquiry and Analysis and Cultural Literacy (in progress) rubrics that were recently adopted by the college. The diversity of the Geography faculty is representative of culturally responsive teaching. Almost all Geography courses adopted Open Educational Resources (OER) to promote equity and inclusivity in the classroom.

One realistic goal for the next year is to increase diversity in the students enrolling in our classes, including gender, racial, ethnic diversity. If possible, we would like to target low enrolled student groups, such as non-binary, Native American, NhoPI, and Black students. The data from the last five years shows that most Geography courses are offered at Rock Creek and Sylvania Campuses where the majority of students are white, Latinx, and international. To increase diversity, the department needs to offer more courses at Cascade and Southeast Campuses, where the student body tends to have more diversity.

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 found it difficult to analyze inequities and student success with the data provided. Analyzing this data raised more questions than it answered, which is a common outcome when analyzing data. It is what we find often within Geography and Geospatial research and it is not surprising that we want to have more information to dig deeper. The largest data gap we found was having

the data disaggregated by each campus on gender, race, ethnicity, and Pell. It would also be helpful to have gender, race, and ethnicity data for campuses as a whole, as well as the communities surrounding each campus. This would allow us to target specific course offerings based on the potential student population.

2C. CTE Completions - GIS Certificate (less-than-one-year)

2C1. Is the program independently tracking student completions? Feel free to share your data sets here. Are there any program practices that positively influence completions? Are there any program practices that could be revised in order to more positively influence completions? Please explain.

Our program does independently track student completions for the GIS Certificate. When comparing that data to the data provided by the college, there was a slight discrepancy from year to year, which may just be due to summer-term completions. Since most students in the program begin in Fall, any summer completions are attributed to the prior academic year. I believe the college does it the opposite and attributes summer completion to the upcoming academic year.

While it is hard to draw direct and concrete conclusions about program practices and completions, there are practices that we believe play a role.

- **Geospatial Program Advising** | Having a dedicated Geospatial Programs Advisor allows us to be proactive in advising, rather than reactive.
- **Tutoring** | Since the pandemic shut-down, we have been able to offer 7 days of virtual tutoring. This resource is essential for students who need extra support for any of their Geospatial classes.
- **Loaner Laptop program** | Just before the pandemic, we started a loaner laptop program for our students, with funding from our NSF grant. This allows us to lend out laptops, with most of the necessary software for our programs, to students that would otherwise not be able to access a computer at home.
- **GIS Lab Coordinator** | Having a dedicated staff member to work with students on any equipment or hardware issues, has also provided necessary support for completing our programs.
- **Focus on 21st Century Skills** | Our geospatial classes have been designed to focus on skills such as critical thinking, flexibility, problem solving, technology and information literacy, collaboration and communication. This approach engages students and allows them to work through their own learning journey.

- **Project-based labs** | Labs in our Geospatial classes have been redesigned to be project-based, focused on environmental & social justice, and based on real-world applications of Geospatial technologies.
- **GIS Club & Student Activities** | The GIS Club helps to build a community within our students - they plan events and engage in projects as a group. Students get to know their peers and this level of comfort creates a system of support as they go through their program and gives them a sense of belonging.
- **Internships** | Through NSF funding, we have been able to offer students paid internships with community & industry partners. This gives students an opportunity to gain real-world experience prior to graduation making them more competitive when they enter the job market, and getting paid for the experience.

There are also some program practices that could be revised in order to more positively influence completions.

- **Geospatial Program Advising** | With the reorganization and advising redesign we are concerned that we will lose our dedicated Advisor position and students will be routed to general advising. This is a concern because much of our advising is not only about coursework, pre-requisites, and course planning. It's about career advice, understanding the Geospatial field, and providing information about local/regional industry that employs graduates of our programs.
- **Perkins Funding Eligibility** | The process for becoming eligible is a bit unclear, however now that we have an AAS, we should be closer to meeting the requirements. Being eligible for Perkins funding would support our dedicated Program Advisor, as well as provide equipment funding.
- **Recruitment & Retention Coordinator** | In an NSF grant we submitted this fall, this position was included. Having a dedicated person in a position like this would give students more opportunities to stay engaged with our program, and therefore completing.

2C2. If different from your internal tracking (if you do it), what conclusions or observations are suggested by the graduation data provided in the Awards Tab?

As noted earlier and shown in the table below, the internal tracking & college tracking align well with some discrepancy that we believe is stemming from the way Summer terms are included in the academic year.

Table 4 GIS Certificate Graduates		
Academic Year	Department Completion #s	College Completion #s
2020-21	31	28
2019-20	21	22
2018-19	31	33
2017-18	49	46
2016-17	18	18
Total # of Graduates	150	147

There are a few observations that stand out from this data. We had an unusually large graduating class in the 2017-18 academic year. This is not the first time that we have noticed this, although there has been no clear reason for this anomaly. In the 2019-20 academic year, many students did not continue in Spring term because of the shut-down related to Covid-19, which explains a drop in the number that academic year. The average number of graduates over the 5 years is about 29 students, although the reality is that the numbers fluctuate quite a bit from year to year. We would like to see somewhere between 25-30 graduates a year and it seems that we are within that range already.

2C3. Is your program aware of any external influences that strongly affect program completion? For example, labor market impacts, business partnerships, or internship availability, etc. Please explain.

Other than the Covid-19 pandemic, which has disrupted many aspects of our society, economy, politics, and culture across all industries, there are no other external influences that strongly affect program completion that we are aware of.

2C4. Are you able to get information about graduate job placement/salaries for recent graduates? If so, please describe how you get that information, and what you have learned.

This is a difficult thing to track. If other programs have found effective ways of doing this, it would be great if they could share their practices with others. We have encountered the following obstacles and difficulties when trying to get this information.

- We can create a Graduation Survey for graduates each term, however that only captures job information for immediately after graduation. This data would not accurately or reasonably capture job placements for our graduates.
- If we wait until post-graduation, let's say 6 months, graduates are no longer checking their PCC email and many times that is the only contact information we have for students.
- If we wait until post-graduation, how long after graduation do we send out the survey? What is a reasonable amount of time post-completion that students should be getting jobs?
- While the GIS Certificate is a CTE program, some students use this as a stepping stone towards a degree and transfer to a 4-year University after completion or as a way to build their skills and application for a graduate program. This group of students are not job-seeking upon completion of our program.

For the last 5-year Program Review in 2018, we sent out a survey to all students who completed the GIS Certificate or took GIS classes from 2010-2017. Details of the results can be found in the 2018 Program Review document. To summarize, 76% of graduates from our GIS Certificate program that responded to our survey were employed and an additional 10% were not employed, nor were they seeking employment.

Conducting that survey was a large undertaking and not sustainable for yearly results. We are eager to develop a system to track graduates and their employment status. If there is a way to share how other departments are doing this, please pass this along.

SECTION 3: REFLECTION ON ASSESSMENT OF STUDENT LEARNING

3A1. Learning Assessment Reports

- X Multi Year Plan current and complete
- X 2021 Summary Data Report submitted
- X 2021 CTE Learning Assessment Report submitted

____ 2021 TSA submitted (Please check if TSA submitted)

Program Notes: If any of the above forms above was not submitted, please explain why. Feel free to add additional notes/ context as appropriate.

3A2. Assessment Reflection

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

Commendations: It is commendable that the SAC submitted a completed assessment report in spite of the many challenges presented by remote teaching during this pandemic year. The report results support the effectiveness of portfolio projects to achieve the outcomes. The questions raised as a result of the assessment demonstrates the great care this SAC shows for the success of the students.

Suggestions/Comments: As your SAC has already suggested, it would be useful to look at trends for each rubric criteria and dig deeper into the data. It's excellent that 81% of the portfolios met the benchmark, but knowing more about the portfolios that didn't achieve the benchmark could be insightful. Were there particular dimensions of the rubric that students struggled with? More information about successes and areas for improvement can help inform targeted changes around teaching, curriculum, and so on.

The reviewers would also appreciate seeing disaggregated scores for each rubric dimension/criteria. If data is disaggregated, there will be more meaningful ways to evaluate if any changes need to be made. For example, the current benchmarking and reporting is based on a cumulative score for each portfolio. However, if data could show achievement for each rubric criteria, then the reviewer/SAC would be able to identify weaknesses. Are there meaningful patterns at the criteria or program outcome level?

Questions: Which dimensions of the rubric are students are most successful within, and in which dimensions do they struggle the most?

What changes in curriculum and/or teaching could support student learning for the dimensions with lower attainment levels? How will this inform a reassessment in the future?ing forward to assess with a project focused on improving student learning & achievement?

SAC Response:

Question 1 | Which dimensions of the rubric are students are most successful within, and in which dimensions do they struggle the most?

It is important to look deeper into the Portfolio scores to better understand what components students are successful and struggle with the most. Looking back at the data from 2020-21, the pattern that sticks out is that students generally do well or struggle in all areas being assessed. It isn't that there is one area that all students are struggling or excelling, rather that a student either excels or struggles. This is an interesting pattern that we plan to explore in more depth for

the current academic year. We agree with the feedback provided by the LAC that “ knowing more about the portfolios that didn’t achieve the benchmark could be insightful.” This year we plan to disaggregate the data by criteria and students to try to better understand the nuances of these scores. One factor that could influence these Portfolios is whether or not a student is job-seeking. While we use these Portfolios to assess the GIS Certificate program outcomes, students use these Portfolios to apply for jobs. If a student is not immediately going to be on the job-hunt they may not invest as much time into it.

Question 2 | *What changes in curriculum and/or teaching could support student learning for the dimensions with lower attainment levels? How will this inform a reassessment in the future moving forward to assess with a project focused on improving student learning & achievement?*

This is a multifaceted question that does not have one easy answer. There are a few ways that we can disaggregate students and their scores to better understand the lower attainment levels. Until we better understand the intricacies of students' attainment levels, it is difficult to ascertain what we can change in our curriculum or teaching to better support those students.

One thing to note about the Portfolios we use for the Learning Assessment is that the work that gets included in these is a sample of students’ work from the full GIS Certificate program. The work comes from multiple classes and part of the Portfolio creation process is for students to select specific projects from the program that represent their best work. It is not a comprehensive compilation of their work, and it is possible that students are not selecting what we might consider their best work.

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?

We are excited to share some of the Geography achievements from the last few years. We feel that this list could include so much more than what we are able to summarize into a digestible amount of information. We are proud of what our Department achieves given our size and believe we are moving in a positive direction in many ways.

- **National Science Foundation grant - eGIST** | In 2019, the Geography department was awarded a 3-year, \$563,100 grant from the NSF for the development of a Geomatics AAS and UAS Certificate, to purchase equipment for our programs, revise and develop curriculum to be project-based, and to grow student recruitment and retention of

underrepresented students in our field. An additional \$89,722 was awarded one year into our grant to support student GIS Internships with community and industry partners.

- **National Science Foundation grant - eGIST2** | To build off the success of our original NSF grant, we submitted another proposal in Fall 2021 for a grant that would begin in July 2022 to focus primarily on the Recruitment and Retention of students into our newly created programs. A number of exciting projects and activities were included in this proposal that would elevate our programs to new levels. While we do not know the outcome of this proposal yet, the application in and of itself is a feat that we are proud to have completed.
- **New Program Development** | In Fall 2021, we started to offer our two newest Geospatial programs: Associates of Applied Science in Geomatics & Geospatial UAS Specialist Certificate. It is exciting to see the Geography program grow. While it is difficult to get an actual number of students enrolled in the programs, according to Grad Plan we currently have 22 students that have declared the Geomatics AAS as their major and 21 students declared the Geospatial UAS Certificate as a major.
- **Bridging Industry & Academics** | In our Geospatial programs, there were many ways in which we were able to connect our students with the Geospatial Industry. We have part-time faculty that work as GIS Professionals and bring that experience and knowledge into the classroom. We also invite guest speakers into each of our classes to present on the work they are doing that relates to what students are learning.
- **K-12 and Community Engagement** | PCC Geography faculty are engaged in the broader geographic community, coordinating the annual GIS Day and Critical GIS Events, and also presenting at local conferences. In 2020 & 2021, PCC faculty participated in the Center for Geographic Education in Oregon's (C-GEO) GEOFEST, a K-12 Geography education conference. The topics included volunteer geographic information opportunities in the classroom titled "iNaturalist: Community Science in the Classroom" (2020) as well as pedagogical perspectives and lesson plans in "Queering Geography and Geography Education" (2021).
- **iWitts Training** | In Winter & Spring 2021, the Geospatial team participated in the iWITTS training that focused on how to recruit and retain women into STEM educational programs. While the training itself was somewhat problematic in its content, the GIS team was able to come together to strategize on ways to create materials and events focused on being more inclusive.
- **OER adoption** | In the 2020-2021 academic year, Geography faculty members received multiple grants to develop class materials focused on OER textbooks or adopted OER textbooks in the course revision process. This is one way in which we are making our classes more accessible and inclusive. Many of these grants were done collaboratively with a group of Geography faculty.

1. Geo 212: Geography of Global Issues |\$2,250 | Eco-Social Justice Grant | Work completed by Tuba Kayaarasi
2. Geo 105: Human Geography | \$4,500 | Eco-Social Justice Grant | Work completed by Tuba Kayaarasi, Lauren Hull and Dimitar Dimitrov
3. Geo 215: Geography of Latin America | \$4,960 | Linn Benton Community College Agent for OER Support Funds | Work completed by Tuba Kayaarasi and Dimitar Dimitrov
4. GEO 106: World Regional Geography | STORI Initiative, OER Adoption began in Fall 2021| Work completed by Lauren Hull, Masoud Khierbadi and Kerry Pataki

→ **SAC Course D2L shell development** | Geography faculty members have attended various online teaching and learning workshops to improve quality of teaching. Faculty have worked intensively to develop course shells that successfully meets the Quality Matters standards. The following courses have had revisions to become SAC-wide development shells:

- ◆ GEO 105 Human Geography | OER adoption, teaching slides, discussions, quizzes, and supporting videos (Eco-social Justice Grant)
- ◆ GEO 106 World Regional Geography | On-line course shell re-development (STORI Initiative), OER adoption, LMS supported activities, discussions, quizzes, and videos
- ◆ GEO 170 Maps and Geospatial Concepts | Remote/on-site shell updates to address new Geomatics and UAS program content, technical updates for course software. Additional development for an updated on-line shell needed.
- ◆ GEO 209 Climate Change and Human Systems | Course re-design (The Instructional Improvement Project-TIIP grant by Lauren Hull) following CCOG and title changes from GEARs process. Course includes teaching slides, discussions, quizzes, and supporting videos.
- ◆ GEO 212 Geography Of Global Issues | OER adoption, discussions, quizzes, assignments, and supporting videos (Eco-social Justice Grant)

→ **Additional curriculum innovations** | Geography faculty members have taken numerous approaches to ensure quality curriculum and pedagogical best practices. These efforts include but are not limited to: utilizing D2L evaluation rubrics and ableplayer video playlist, integrating Pearsons Mastering Geography, using current news as case studies and project topics, and a focus on student-driven, inquiry based activities.

→ **Student Work Samples** | In Spring 2021, we initiated an optional GEO/GIS Student Example Work and Achievements survey which provides the following: (1) consent for using student work and achievement as an in-class examples (2) gathers non-PCC contact information and (3) allows students to share their experiences in the LDC or CTE

programs. This is an optional survey, therefore has not been distributed by all faculty or completed by all students. It has been successful in identifying student example work to use in class, on our website, and in any promotional materials we create.

- **Faculty contributions to college service** | Geography faculty members have been actively involved in developing the social inquiry and analysis rubric and cultural literacy rubric. As of Fall 2021, all of our General Education courses have started implementing signature assignments to assess student success in social inquiry and analysis. Faculty members have also been actively participating in the International Steering Committee; worked collaboratively with other SACs such as RING, Geology, Ethnic Studies, and others; and served on hiring committees, re-opening committees, and generally be participating in college-wide discussions around the reorganization and other related topics.

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

There are challenges that we experience as a SAC/Department that have not been addressed in other parts of this document.

- **Geography Program Marketing & Promotion** | The college does not prioritize offering any program specific marketing or promotion. The Faculty is held responsible for this type of work, however there is no financial support, professional development or training in this area, nor any staff at the college with the role to support departments in this area. At a time where we have two new programs starting and see declines in our LDC enrollment, having college support to promote and advertise what Geography, GIS, Geomatics, and UAS have to offer potential students, is essential.
- **Outreach to Women & BIPOC Students & Communities** | In addition to having support for external marketing and promotion, we have internal challenges with promoting our programs to student populations that are not typically represented in Geospatial Technologies. We would like to see more structures put into place at PCC where advisors and career specialists could inform students looking for some direction with career options about the Geography & Geospatial programs. Advisors tend to suggest careers that are more familiar to them - like nursing, education or engineering - however the lesser known options such as Geospatial Technologies are not usually ones that get promoted. We need help from all aspects of the college in promoting our programs and helping students become aware of all career options that offer livable wages in a growing field, and also help communities.
- **Accessibility Review of Geography Courses** | Maps are a key communication tool of geographers, but pose challenges for students with vision-based disabilities. PCC does have a number of braille maps in the PCC library system which can be used as reference, however remote operations, and general barriers for transportation and limits on time

may prevent students from accessing these resources. All geography courses could improve accessibility with additional support from Disability Services and college funding to help with captioning and alternative text integration in slideshows, visuals, and any adopted OERs. While individual students can receive these options via the accommodation process, all students would benefit from this update regardless of accommodation status. Due to limited staffing (Geography faculty and Disability Services), the college will need to prioritize funding for this opportunity for increasing accessibility. We may want to focus on introductory and/or highly enrolled courses as priority, such as GEO 105, 106, 110, and 170.

- **Support for equitable representation at campuses** | We would like to get financial and administrative support to offer more Geography classes at Cascade and Southeast campuses as part of our goal to make our classes more accessible and attract a more diverse student population.

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

We see so many opportunities for Geography programs at PCC! We have big ideas and understand the role Geography plays in providing students with an international and cultural lens in which to view the world, 21st Century work skills, and tools to help their communities plan for the future from both an environmental and social perspective. Many of these ideas have already been shared in various places in this document. Others are present in the NSF grant we submitted in Oct 2021. Our SAC would love to invite you to share a cup of coffee or tea to discuss this in more detail.

SECTION 5: INDUSTRY AND EXTERNAL ACCREDITATION GUIDANCE

5A. Advisory Committee

Please check your Advisory Committee list at [Spaces](#). If it is not up to date, submit the current list to academicaffairs@pcc.edu and we can update Spaces for you.

As we transitioned from having just one CTE program - the GIS Certificate - to developing the new Geomatics Associates of Applied Science and the Geospatial UAS Specialist Certificate, we also transitioned our Advisory Board. The current roster was sent to Academic Affairs on Nov 30, 2021.

Please summarize feedback/input that you have received from your Advisory Committee over the past two years, and outline actions that resulted from this feedback.

Since 2019, our Advisory Board has been mostly focused on providing guidance and feedback on the creation and development of our new Associate's of Applied Science in Geomatics, and Geospatial UAS Specialist Certificate. This particular Board was compiled with the objective of guiding through this development process and represents industry in Geospatial, Surveying, Engineering, and UAS.

The input we received from our board included:

- **Curriculum** | What existing courses should be included in each of the new programs, as well as what new courses should be developed to fill in any gaps
- **Technology** | This included equipment, software and hardware being used by industry and recommendations for what to use in our coursework.
- **Connections to Industry** | We often ask our Board for additional industry contacts to make connections for Internships hosts, guest speakers, and community partners for student projects.

All of the feedback and input from our Advisory Board has shaped what we started offering in Fall 2021 in our Geomatics AAS & Geospatial UAS Certificate.

Are there any examples of successes you have had working with your Advisory Committee that you would like to highlight?

As mentioned above, our Advisory Board has been instrumental in guiding us through the development of our new Geospatial programs. Additionally, we have been able to secure Letters of Commitment from some of our Board members for our latest NSF grant proposal and also successfully placed Interns at the organizations that our Board members represent.

Does the SAC have any suggestions for ways that the Program and Pathway Deans could support the SAC and the Advisory Committee to work together effectively?

Our Advisory board is working together effectively. Program & Pathways Deans could help provide new contacts to industry partners that may have an interest in serving on our board.

5B. Accreditation

- Do you have professional or programmatic accreditation? (This is a separate accreditation from PCC's institutional accreditation by NWCCU).

YES / NO

- If yes:
 - What is the name of your accrediting body?
 - What is the typical accreditation cycle?
 - When is your next self-study/visit scheduled to occur?

Please summarize feedback/input that you have received from your accrediting body over the past two years, and/or any actions taken as a result of accreditation recommendation or guidance.