



Instructional Annual Program Review and Planning Update Form Fall 2023

BACKGROUND:

Program review is an integral part of the campus planning process. As programs and areas monitor their progress on the current comprehensive four-year program review, changes in need and scope can be expected. This Annual PR Update form is designed to outline and request modifications to the current program review that occur between comprehensive four-year review cycles, as needed.

Examples of a requested change include new information such as action plans, outcomes modifications, personnel changes, technology needs, and capital expenditures requirements. As programs and areas monitor their progress on the previous comprehensive four-year program review, the form provides the basis to suggest a change in plans and processes to improve student success and institutional effectiveness.

DIRECTIONS:

This form shall be completed annually by **all** programs.

- Instructional programs must submit their Annual Program Review Update form to their dean by 5pm on Monday, November 27, 2023.
- Deans will forward the completed form to the Program Review and Planning Committee Chairs by 5pm on Monday, December 4, 2023.
- Questions or concerns?
 - Committee contacts:
 - Co-chairs Mary Bogan (mbogan@fullcoll.edu) and Bridget Kominek (bkominek@fullcoll.edu)
 - Division representatives on the [Program Review and Planning Committee](#)
 - [Office of Institutional Effectiveness](#)

SUBMISSION:

Program:

Division:

Date:

We have reviewed our most recent self-study and **have not identified** any significant changes that necessitate resource requests for the upcoming academic year. *(Complete part 1 only)*

We have reviewed our most recent self-study and **have identified** significant changes that necessitate additional resource requests, which are attached in our submission. *(Complete parts 1 and 2)*

Principal Author Signature: [Aline Gregorio](#)

Printed Name: [Aline Gregorio](#)

Date: [11/27/2023](#)

Dean Signature:

Printed Name:

Date:

Part 1: Review of Data

Institution Set Standards (ISS)

1. Use the data provided by the Office of Institutional Effectiveness (OIE) to review your course completion and success rates and provide a comparison to the Institution Set Standards for course completion and success rates.

After August 15, you will be able to access PDF copies of your program's ISS data here: [ISS ISLO Documents](#). The folder will also include instructions to access Tableau dashboards with the same information. The instruction document will also provide more context about how these standards are calculated. If you have any questions, please reach out to the Office of Institutional Effectiveness at ie@fullcoll.edu.

2. If your program meets or exceeds the standard for completion and success, to what do you attribute your success? If your program does not meet this standard, please examine the possible reasons, and note any actions that should be taken, if appropriate.

GEOG 100 is our second most enrolled course. It prepares students with global literacy and fulfills GE Social Science requirements and the cultural diversity requirement. Despite the importance of GEOG 100 in our students' educational journey, the success rates for the course continue to fall below that of the success rates of other geography courses in our department, hovering around 60% each year, 10 percentage points below the department (68%) and college average success rates (68%) in 2022/2023. When disaggregated by race/ethnicity, the course shows great inequities in student success rates, with Black and Latinx students disproportionately impacted. But students in GEOG 100 are much younger than those in other GEOG courses, a third being under 20 years old and 13% being first-time college students (the highest share in our department aside from honors courses).

The lack of basic skills preparation and lack of basic geographic literacy of most first-time college students is likely an underlying reason for the student success patterns described. Furthermore, young first-time students are still navigating how to be a college student altogether, and there is a learning curve. In addition, World Geography is a challenging course to teach and learn, given that it combines all areas of geography (human, environmental, and physical) in an exploration of each of the world regions. Professor Gregorio as taught a decade of teaching experience in this course, and through her cross-institution collaborations on improving pedagogy for World Geography, she has consistently adopted new strategies and methods for improving student learning in this rigorous class. In our latest Program Review, we outlined some strategies that are being employed, like the usage of equitable grading and embedded tutoring. Our main strategy, however, is the adoption of Open Resources. Professor Gregorio published an Open World Geography textbook, a project sponsored by ASCCC and guided by an advisory board composed of university professors. Open educational resources have been identified by ASCCC as an effective strategy to mitigate inequities and improve student success.

It is also worth noting that the high withdrawal rates in GEOG 100 are **attributable to phantom students**. In Spring 2023, 135 students were removed from GEOG 100 five days before the beginning of the semester. Then, before census date, another 60 fake enrollments were identified (across GEOG 100 sections alone). Past census date, a large share of students deliberately only participated in the first mandatory weeks and then never returned. This is unprecedented over the years that this course has been offered. The delay in identifying phantom students has hurt our ability to serve real students. GEOG 100 was full for one month over winter break, blocking real students from enrolling in the course. By the time administration identified 135 fake students in the class, any student who had wished to enroll had already turned away. Subsequent enrollment continued to be of students who never intended to stay enrolled in the course. This is an issue that is severely impacting the metrics for this course.

Another important pattern to note is that GEOG 100 is primarily offered online, but online success rates trail thirty points behind in-person success rates. The Geography Department has struggled with enrollment trends in this course, as students demand online classes, and our in-person classes get canceled for lack of enrollment. We have had several sections of GEOG 100 courses canceled because students do not want to enroll in this course in person. Yet, it is the in-person classes that have the highest success rates (In person success rates for Spring 2023 was 72.6%, and 49.2% online). It is a difficult situation when students are demanding courses that require a level of autonomy and discipline that sometimes they cannot offer. What I notice is that students struggling online are not login in or participating in the lessons/assignments, thus online engagement is very low, which in turn hurts the learning experience. I wish I had a solution to propose, but for now, we are continuing to attempt to bring students back in person while still offering embedded tutoring and free textbooks.

GEOG 230 is a specialized course, as it introduces students to Geographic Information Systems (GIS). It is highly technical and time intensive. While serving a small number of students, this course helps prepare students of all majors to gain a technological edge. GIS courses are 100% taught by an adjunct professor. In this Program Update, we are requesting funds to support our GIS courses by offering free textbooks and laptop loans to GIS students.

Institutional Student Learning Outcomes (ISLOs)--Global Awareness ISLO.

1. Describe your program's participation in assessment of Institutional Student Learning Outcomes (ISLO's). Specifically, how does your CSLO attainment, for the courses that are mapped to the Global Awareness ISLO, compare to Fullerton College's ISLO attainment?

After August 15, you will be able to access PDF copies of your program's ISLO data here: [ISS ISLO Documents](#). The folder will also include instructions to access Tableau dashboards with the same information. Please reach out to your SLOA representative if you have questions.

Geography is the holistic study of the Earth's human and physical systems and their relationships. Its broad disciplinary scope bridges the social and natural sciences focusing on understanding the relationships of human societies with the environment and each other, often focusing on the disparities these relationships produce. As a discipline, Geography is paramount in understanding a world that is increasingly globalized—a phenomenon that compels us to better understand the complex global relationships and interdependence between peoples, places, and environments. There are a range of topics highlighted in such geographical inquiry, including an understanding of world and regional migrations, agriculture, climate change, resource depletion, economic globalization, international institutions, conflict, human development, and more. In such curricular explorations, students “analyze and synthesize data/information in a variety of forms (numerical, textual, graphic) for the purpose of interpretation, problem solving, and decision-making” and “analyze the interconnectedness of racial, cultural, political, social, economic, and environmental issues from multiple perspectives and recognize the individual agency and collective responsibility necessary for positively influencing those systems” - thus in one geography course, hundreds of students attain two of the institutional learning outcomes (ISLOs) of Fullerton College. Our ISLO attainment for Fall 2022 and Spring 2023 was 100% and 81.37%, excellent figures even in comparison with the college at large.

2. Does the SLO data show significant achievement gaps among demographic groups in your program? If so, where are the gaps and what steps can your program take to shrink them? If not, to what do you attribute your success in minimizing the achievement gap?

In our latest program review, we thoroughly analyzed equity gaps in all SLOs and success/retention rates and presented an equity plan that we have been implementing ever since. This plan includes: 1) universal open resources, 2) embedded tutoring, 3) equitable grading, 4) emphasis on support services in course

syllabi and pedagogical practice, and 5) curricular partnerships. These lines of action are outlined in the 2021 Program Review.

Part 2: Additional Resource Request Reasoning and Support

For each separate resource request, complete steps A, B, and C.

Step A: Briefly describe the request.

Step B: Answer the following questions:

1. Is it imperative that this resource request be processed now rather than during the next comprehensive program review? Why?
2. How will this additional resource allocation specifically enhance your program's services, activities, processes, etc. to continue or improve student learning and achievement?
 - Is the resource request personnel-related? If so, please provide evidence to justify the requested positions such as retirements, program growth or curricular demands, full-time/adjunct ratios, etc.
3. How will this additional resource allocation help you serve the college mission or strategic initiatives, and/or your program's goals for improvement, as stated in your last program review?

NEW STRATEGIC ACTION PLAN #1 – LOAN LAPTOPS for GEOG 230, Geographic Information Systems (and advanced versions of it, activated in Fall 2022).

STEP A. BRIEF DESCRIPTION OF RESOURCE REQUEST

This resource request is to purchase laptops with the adequate technological requirements to support students taking GIS courses. Students are demanding this course online, but many cannot purchase the adequate computers to run the GIS software. We seek to purchase loaner laptops to support students struggling with technological requirements of GIS courses.

STEP B. QUESTIONS 1-2: WHY/HOW GIS LAPTOPS WOULD HELP STUDENTS

Geographic Information Systems (GIS) helps students learn how to frame, visualize, and grapple with real world problems. Moreover, understanding how to utilize GIS enables students with the ability to create solutions for struggles dealing with natural hazards, climate change, social inequity, and a myriad of other complex issues faced by society at large. Unfortunately, learning GIS can be challenging because it involves a combination of technical aspects that can be difficult to overcome without access to adequate resources.

Fortunately, GIS can be taught synchronously, asynchronously, and with a hybrid format. The in-person synchronous course structure is ideal for the education of GIS because it automatically provides students with all the software and hardware needed to engage GIS course curriculum. In the classroom/lab environment each student has access to individual computer workstations equipped with registered GIS programs and can begin learning GIS without having to purchase hardware or install and license software. However, the recent popularity of online learning has necessitated asynchronous and hybrid GIS courses, which has shifted the responsibility to successfully obtain and access the appropriate computer software and hardware components onto students. Sadly, the inability to acquire essential GIS compatible and equipped computers is an immense hindrance to enrollment and retention of students in GIS online courses.

ArcGIS Pro is the latest GIS software provided by Environmental Systems Research Institute, Inc. (Esri). Esri's GIS mapping software offers a very powerful mapping & spatial analytics program that is an industry standard. However, the ArcGIS Pro software package requires a robust computer that operates only with the following specifications:

- Operating System minimum: Windows 10 Home, Pro, and Enterprise (64 bit)
- CPU with a minimum of 2 cores, simultaneous multithreading (recommended 4 cores, optimal 10 cores)
- x64 platform
- Minimum 32 GB of free storage space
- Minimum 8 GB or ram memory (recommended 32 GB, optimal: 64 GB or more)
- Recommended 4 GB or more dedicated (not shared) graphics memory
- Minimum DirectX 11, feature level 11.0, Shader Model 5.0
- Minimum OpenGL 4.3 with the ARB clip control and EXT texture compression s3tc extensions (recommended OpenGL 4.5 with the ARB shader draw parameters, EXT swap control, EXT texture compression s3tc, and EXT texture filter anisotropic extensions)
- Minimum 1024x768 screen resolution (recommended 1080p or higher)
- Microsoft .NET Desktop Runtime 6.0.5 or a later patch release (6.0.6 and so on), using a Windows x64 installer, is required

Furthermore, ArcGIS Pro will not operate natively on non-Windows platforms, such as Apple Macintosh computers, Chromebooks, or computers running Linux OS. Therefore, to be successful in an online GIS course, students are responsible for accessing computer workstations that run Windows OS and have all the required hardware specifications for running ArcGIS Pro software. Hence, they will need to use their own personal computer(s). If they do not own a personal computer or one that meets the Windows OS requirement and/or hardware specifications, then they will need to purchase one at their own cost. Once students have access to an appropriate computer workstation, they need to install and license the GIS software, which is a complicated process that can, from the onset, thwart students from wanting to learn GIS.

Virtual desktop lab is inadequate for online GIS courses

The remote use of virtual desktops is plagued with obstacles that block students from attaining access or easy use of GIS software. On average, twenty percent of online GIS students opt to use virtual desktops, and the majority eventually regret choosing to use that option. Of the twenty percent of students using FC virtual computer labs, half drop the course due to the technical complexity involved with remotely logging on to a virtual lab workstation, issues maintaining a connection to a virtual desktop, and difficulty using cloud storage for GIS data management.

A virtual desktop is a cloud-based computer workstation, or a physical desktop computer located in one of the computer labs on campus, which users can remotely access from anywhere by using a computer with an internet connection. There are pros and cons associated with the use of virtual labs. For instance, GIS students who own non-compatible systems, such as MacBooks and Chromebooks, can use their computers to remotely access a virtual lab workstation that will provide (on their computer display) a Windows environment equipped with licensed GIS software. However, the use of virtual desktops requires a constant and stable internet connection, as well as active use. If the connection is interrupted or no activity is detected for some time, then the user is disconnected from the virtual lab and must log in once again. Disconnection is a major issue because users are not provided with private/dedicated virtual desktops, but instead are randomly assigned to one of many virtual desktops upon logging on to the online virtual lab system. Hence, if students are disconnected due to faulty Wi-Fi, a computer malfunction, or automatic sign off due to inactivity, then they must log back in and will most likely not be assigned the same virtual workstation they were previously using.

The number one complaint from GIS students using virtual desktops is that when working for hours on a project, when they take a break to eat or walk away to deal with a pressing issue, such as a crying infant, they ultimately return to find that they have been automatically disconnected from their virtual desktop due to inactivity. Moreover, all their work is lost due to the inability to log back on to the same virtual desktop they were using, which means they must once again start work on their project from the beginning. One student conveyed to me that this issue happened to them three consecutive times while working on a GIS midterm project, and it almost drove them to drop the course if I haven't taken into consideration the hardship experienced with use of the virtual labs while grading their work. During the past two academic years, at least two students per semester who were using virtual labs dropped the course because the functionality of virtual desktops was too problematic for their circumstances.

Another major issue encountered by GIS students using virtual desktops involves the use of cloud storage for data management. Since users are not provided with private/dedicated virtual desktops and are instead randomly assigned to one of many virtual workstations, the virtual desktops cannot be used to save any student work (i.e., data, files, and/or projects) performed with the use of online virtual labs. Thus, personal cloud storage systems, such as OneDrive, must be used to access spatial data required to perform course work and to save spatial data output created by students. Unfortunately, the technical complexity and inconvenience involved with downloading and uploading data every time a student logs on and off a virtual workstation is a considerable deterrent to the use of virtual labs.

Another substantial complaint I receive from GIS students using virtual desktops is that the obligation to use personal cloud storage is an inconvenient constraint that is not conducive to learning GIS and equates to being a hassle GIS students must endure. When working for hours on a project, upon finishing a student may regrettably save their work on the virtual desktop instead of uploading to their cloud storage, ultimately resulting in the loss of their work once they log off the virtual lab system. Several students conveyed to me how upset and discouraged they felt when forgetting to upload output they created to their personal cloud storage after working on a GIS project for several hours, and then having to repeat their work again from the beginning due to the mishap. During the past two academic years, at least two students per semester who were using virtual labs dropped the course because the requisite use of cloud storage systems dissuades them from completing their GIS work.

Learning from other campuses

Most academic institutions have laptop loaner programs that provide students with the opportunity to obtain a computer cost-free. However, loaner programs are seldom department specific, which means the limited number of loaner laptops are procurable by all students campuswide. Unfortunately, most loaner laptops tend to be dispersed long before the start of a semester, and students undergoing late enrollment in GIS courses often miss out on the opportunity to benefit from the loaner program. During the spring of 2023, one of my GIS students at CSULB applied for a loaner laptop during the first week of the semester and was denied because the loaner program ran out of laptops.

Additionally, loaner laptops often tend to be the least expensive and bottom of the line computer platforms that are incapable of running the latest ArcGIS software due to insufficient RAM or inferior graphic processing capabilities. Several semesters ago, one of my students at Saddleback College received a Chromebook from the college's loaner laptop program, which was inauspicious because that computer platform is incompatible with Esri software and could not be used with the necessary GIS programs or data. Ideally, if geography departments could run their own laptop loaner programs, then GIS students in need of technical resources would be assured that they would receive, in a timely manner, adequate computer systems customized for use in geospatial studies.

Fullerton College's laptop loan program does not suffice

Unfortunately, at Fullerton College loaner laptops are offered on a first-come, first-serve basis to all students on campus regardless of their discipline of study, and the loaner program usually experiences a high demand of requests. As a result, there are waitlists and longer approval times, and often the limited number of loaner laptops are distributed long before GIS students apply for them. Furthermore, **the loaner laptop technology is incompatible with, or inadequate for running, the latest ArcGIS Pro software.** Thus, Fullerton College students are at an extreme disadvantage in obtaining a loaner laptop, as well as using it for geospatial studies.

STEP B. QUESTIONS 3: HOW DOES THIS REQUEST ALIGN WITH PROGRAM/COLLEGE

Having the appropriate technology for online GIS courses is necessary for the viability of offering the Geospatial Technologies Certificate, a vocational certificate that is supported by our CTE processes based on workforce needs identified for the area. According to the recent Career & Technical Education Employment Outcomes Survey, CTE programs are extremely beneficial for workforce building. The survey concludes that "...completing CTE studies and training –whether or not a credential is earned, whether or not a student transfers –is related to positive employment outcomes." Participants of this survey reported a 75% employment rate, a 41% wage increase, and 92% satisfaction with their training. As it pertains to GIS, in the Summer of 2021, the LAOCRC (Los Angeles/Orange County Regional Consortium) approved FC's Geospatial Tech Certificate based on regional labor and market data that confirm both current and projected needs for GIS training in the labor force. Offering an array of GIS courses enables FC to serve students seeking both vocational and academic paths. Since we do not have a full-time GIS specialist to teach the courses and to institutionalize this program, we must setup workdays to collaborate with your GIS professor (who is not even paid for office hours let alone preparing software and hardware for a course like this) to support the offering of three new GIS courses using a new software, GIS Pro. Without this collaboration, we will not be able to offer any of the GIS courses.

STEP C. CHART OF DETAILED RESOURCE REQUEST

PART 3. RESOURCE REQUEST, SAP #1 – PURCHASE GIS LOANER LAPTOPS	
Describe Strategic Action Plan	Provide students struggling with technological requirements of GIS courses by providing loan laptops.
College goal/objective the plan meets.	College mission: "advance student learning and achievement by developing flexible pathways for students from our diverse communities who seek educational and career growth, certificates, associate degrees, and transfer". College vision: "inspire positive change in the world." DEIA: reduce achievement gaps through improved online access to ESRI's GIS software. College Goals: 1) "promote success for every student, 2) "cultivate a culture of Equity," 3) "strengthen our connection to our community" "be a hub for the local community, 4) Ensure financial, physical, and technological resources are available to maintain necessary services and programs.
Explain how the request helps the College attain student equity.	Tactile learning in labs as a high impact learning practice that fosters student success and promotes more equitable student achievement. GIS supports CTE students and job placement.
What measurable outcome do you anticipate for this SAP?	Improved student success/retention rates and reduced equity gaps in GEOG 230. Establishing a strong GIS Program online helps respond to student demand for this course to be offered online along with

	other courses in the vocational certificate that became active in Fall 2022.
Type of resource Requested	Dollar Amount / Potential Source
GIS equipment	<p>7 x Dell Precision Laptop Workstations with the following minimum requirements:</p> <ul style="list-style-type: none"> • An Intel Core i9-8950HK CPU @ 2.90GHz • 32GB of DDR3 RAM (4 x 8GB at 2667MHz) • Samsung PM961 NVMe 512GB SSD and a NVIDIA Quadro P3200 professional graphics card <p>~ \$1,800 each x 7 = \$12,600</p>
	Potential Source: One-time funds, student re-engagement funds, workforce funds
TOTAL requested amount	\$12,600