Geospatial Tech & Data Sci-FH Geospatial Tech

Career and Technical Education Programs Addendum
A. Re-Accreditation Information

1. When was your last re-accreditation visit?

There is not an accrediting body for this program

2. Did the program maintain accreditation?

- [x] yes
- [ ] no

3. Were there any commendations/special mentions identified? If yes, please elaborate.

There is not an accrediting body for this program, however the curriculum is modeled after the NSF Model Geospatial Technology curriculum

4. What were the major citations of the last re-accreditation report (e.g. areas of improvement, strategic direction, facilities, personnel, etc.)?

see above

5. What actions has the program taken to address the accreditation citations/recommendations? What barriers has the program faced in implementing improvements?

see above

6. If applicable, what areas of concern were noted during the annual accreditation report?

see above

B. Advisory Board

1. Did the program hold an annual advisory meeting each year of the five-year cycle?

- [x] yes
- [ ] no

2. Did the program submit advisory board meeting minutes each year of the five-year cycle?

- [x] yes
- [ ] no

3. Web link to meeting minutes?

https://foothill.edu/gis/resources.html 2020 meeting was scheduled for April 2020 and was postponed due to Covid

4. Were there any advisory board commendations/special mentions identified?

- The advisory board commended the smooth transition online by the program faculty in 2018
- The advisory board noted that Foothill is one of community colleges in the region that offers a comprehensive GIST certificate program (the other is Diablo Valley). Other schools offer 1-3 GIS classes. Notably, students who take an introductory GIS class at Skyline or San Francisco City college will often transfer to Foothill to obtain an industry-approved certificate
- The advisory board has consistently commended the program on the well rounded nature of students completing the program with both technical and "soft" skills desired by employers
- The advisory board has commended the program on the up-to-date software skills possessed by program graduates

5. Are there any identified actions for improvement or recommendations based on feedback from the program's advisory board?

In response to declining enrollment in 2015-17 the advisory board suggested that the GIST program move entirely online. This was due to the nature of the student body who are predominately working professionals seeking to upskill. These professionals often are challenged to attend face to face classes in the evenings after working all day. In addition, the advisory board noted that with online classes the program would be able to draw from a larger area and meet the needs of professionals such as forest service workers who do not live near to a college.

6. What actions has the program taken to address recommendations made by the Advisory Board? What barriers has the program faced in implementing improvements?

The program has moved online with support from the Online Learning Office and ETS who has provided cloud-based "virtual desktops" that students can use to run GIS software over the cloud. The largest barrier that the program has faced is student access to adequate technology to successfully complete program requirements. Students must either own a robust PC computer so that they can download and run the GIS software, or rely on a very stable internet connection to run the software on a virtual desktop. Students who do not have strong and stable internet connections struggle to successfully run the virtual desktop GIS software.

C. Regional Labor Demand

Labor Demand - Sports Medicine

Total Regional Employment

The total number of jobs for 2018 and 2023 and percentage growth or decline in occupations associated with the selected TOP code in the microregion where the college is located

- Bay Area, Athletic Training and Sports Medicine (1228), 2018-2019

	2018	2023	Change 2018-23	% Change
Regional Jobs Total	11,400	12,100	700	6%
Requires a Bachelor's Degree or Higher				
Athletic Trainers (29-9091)	232	262	30	13%
Requires a Requires a High School Diploma or Equivalent				
Fitness Trainers and Aerobics Instructors (39-9031)	11,168	11,838	670	6%

Projected Regional Job Openings

The total number of annual job openings for 2018-23 time period in occupations associated with the selected TOP code in the microregion where the college is located

- Bay Area, Athletic Training and Sports Medicine (1228), 2018-2019

	Projected Average Annual Openings (2018-2023)
Regional Annual Openings Total	2,064
Requires a Bachelor's Degree or Higher	
Athletic Trainers (29-9091)	18
Requires a Requires a High School Diploma or Equivalent	
Fitness Trainers and Aerobics Instructors (39-9031)	2,046

Labor Demand - Geospatial Tech & Data Sci

Total Regional Employment

The total number of jobs for 2018 and 2023 and percentage growth or decline in occupations associated with the selected TOP code in the microregion where the college is located

- Bay Area, Geographic Information Systems (220610), 2018-2019

	2018	2023	Change 2018-23	% Change
Regional Jobs Total	12,194	13,154	960	7%
Requires a Bachelor's Degree or Higher				
Computer Occupations, All Other (15-1199)	11,366	12,306	940	8%
Requires a Requires a High School Diploma or Equivalent				
Surveying and Mapping Technicians (17-3031)	828	848	20	2%

Projected Regional Job Openings

The total number of annual job openings for 2018-23 time period in occupations associated with the selected TOP code in the microregion where the college is located

- Bay Area, Geographic Information Systems (220610), 2018-2019

	Projected Average Annual Openings (2018-2023)
Regional Annual Openings Total	1,064
Requires a Bachelor's Degree or Higher	
Computer Occupations, All Other (15-1199)	971
Requires a Requires a High School Diploma or Equivalent	
Surveying and Mapping Technicians (17-3031)	93

1. In the data table, what does the regional labor demand data trend indicate?

- [x] the data trend shows an increase in labor demand
- [ ] the data trend shows a decrease in labor demand
- [ ] the data trend shows no change and/or is flat in labor demand

2. Describe the regional demand for labor in this sector. If the projected data trend shows no change/flat, an increase, or decrease in labor demand, explain why.

The regional labor demand is increasing. This field is notoriously difficult to define in the Projected Regional Job Openings as Geospatial Technology skills are supplemental to many fields and are used to enhance/upskill workers in a variety of fields. The majority of jobs required a bachelor's degree in GIS or some other field. Most program students have a bachelor's degree in some other field and are returning to gain GIST skills. Many students in the program would not define GIS as their primary occupation. Many students are in fields ranging from Environmental Sciences, Forest Service, Law Enforcement and Public Safety, Cultural Resource Management, Computer Science and Community Organizing.

D. Regional Labor Supply

Labor Supply - Sports Medicine

Overall	
2011-2012	420
2012-2013	411
2013-2014	379
2014-2015	364
2015-2016	349
2016-2017	402
2017-2018	349
2018-2019	604

Labor Supply - Geospatial Tech & Data Sci

Overall	
2011-2012	660
2012-2013	605
2013-2014	528
2014-2015	543
2015-2016	581
2016-2017	518
2017-2018	542
2018-2019	729

1. In the data table, what does the regional labor supply data trend indicate?

- [x] the data trend shows an increase in labor supply

- ☐ the data trend shows a decrease in labor supply
- ☐ the data trend shows no change and/or is flat in labor supply

2. Describe the regional supply for labor in this sector over the last five years. If the data trend shows no change/flat, an increase, or decrease in labor supply, explain why.

The trend shows a slight increase in the labor supply. The data pulled for this study comprises job openings where GIS is the primary skill desired. While there continues to be a slight increase in the need for GIS technicians, the demand is far greater (and continues to increase) for workers who have GIS skills that supplement their primary occupational category. Foothill College fills a demand in the regional labor market. Foothill is one of two community colleges in the Bay Region to offer GIST Certificates and AS degree programs. While several other colleges offer GIST coursework (1-2 classes), Foothill and Diablo Valley College meet a need in the regional labor market for a robust GIS education by offering comprehensive certificates and degrees in the field.

E. Regional Wages

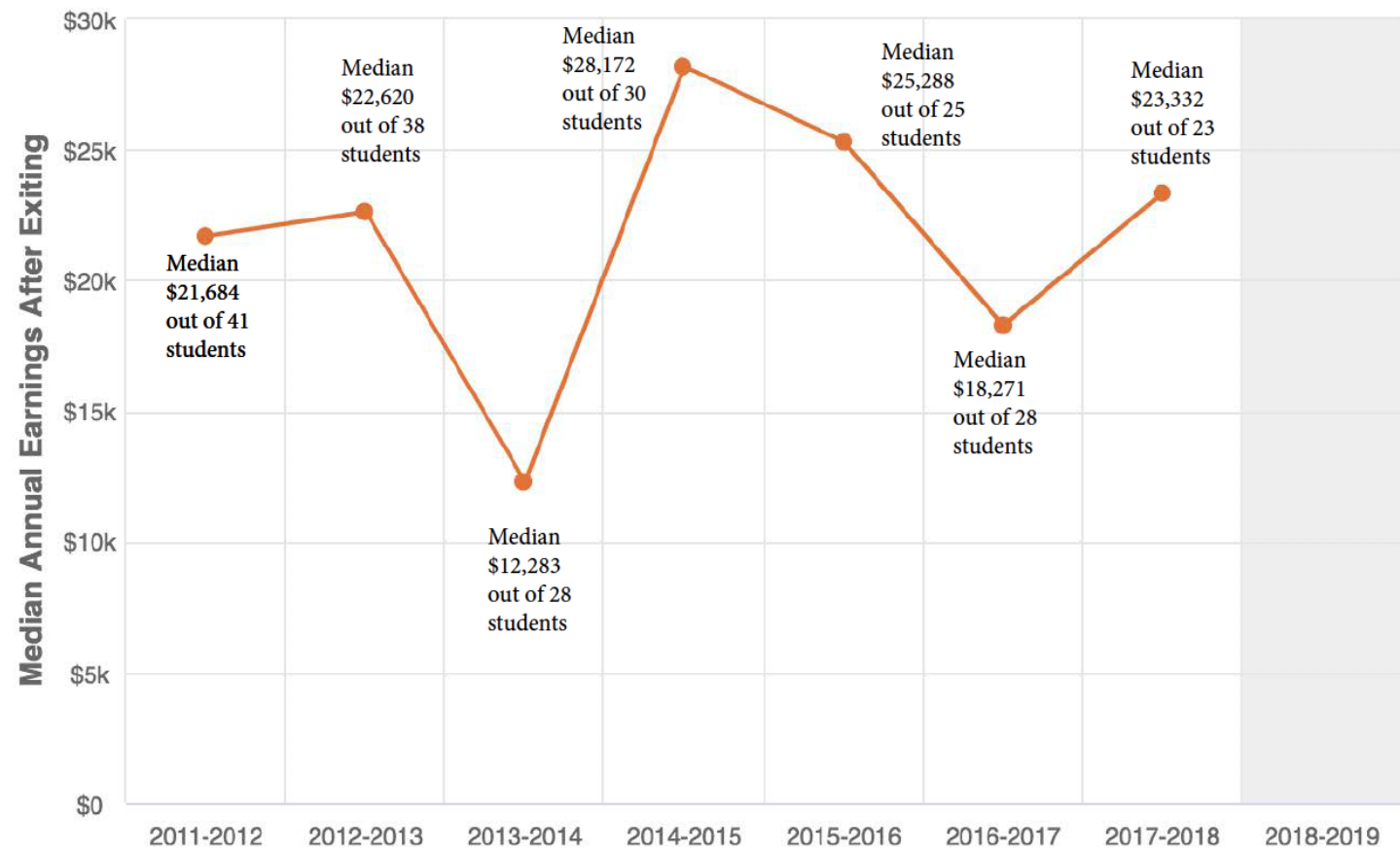
Regional Wages- Sports Medicine

Median Annual Earnings After Exiting

Among students who exited the community college system and who did not transfer to any postsecondary institution, median earnings following the academic year of exit

DRILL DOWN

Time Trend



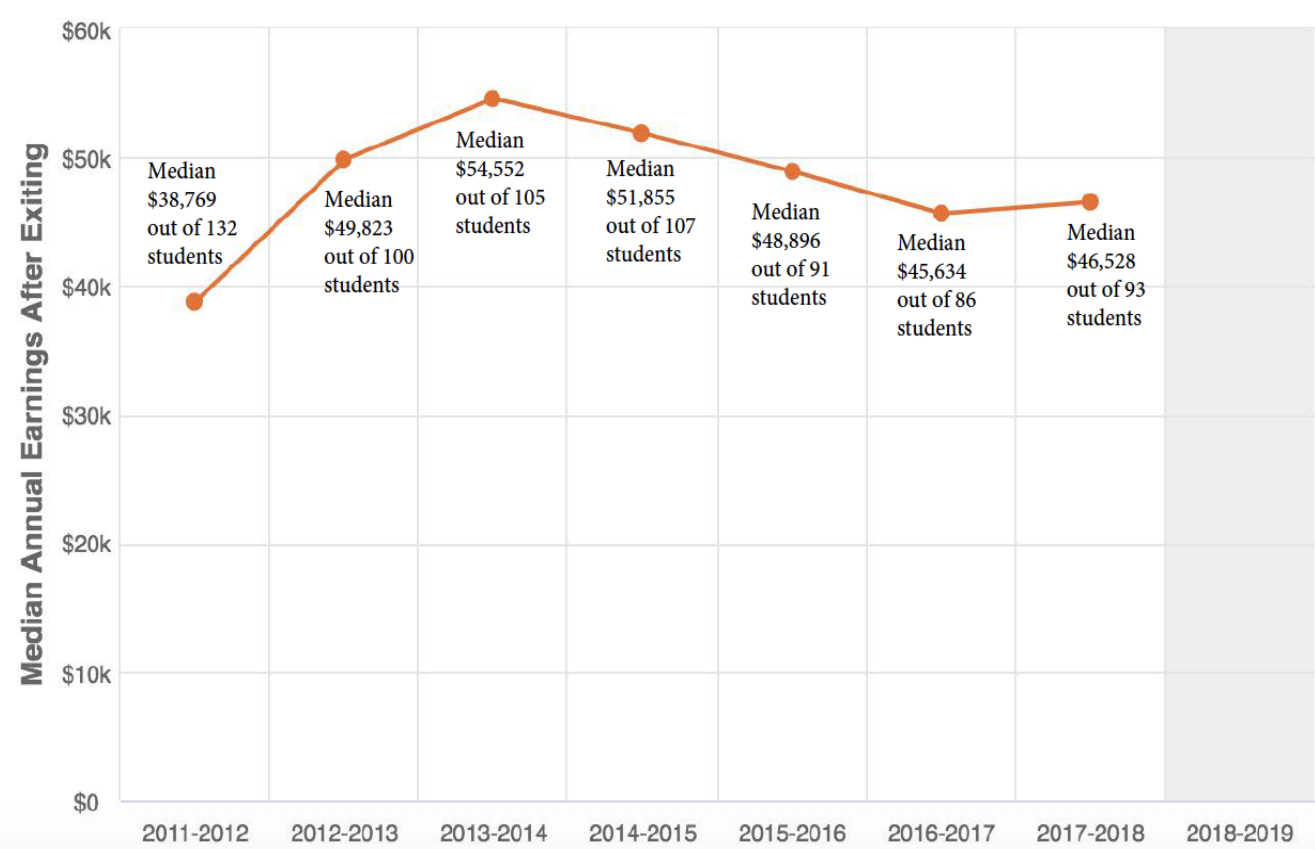
Regional Wages- Geospatial Tech & Data Sci

Median Annual Earnings After Exiting

Among students who exited the community college system and who did not transfer to any postsecondary institution, median earnings following the academic year of exit

DRILL DOWN

Time Trend



1. In the data table, what does the wage data trend indicate?

- [ ] the data trend shows an increase in wages
- [ ] the data trend shows a decrease in wages
- [x] the data trend shows no change and/or is flat in wages

2. Describe the regional trend for wages in this sector over the last five years. If the data trend shows no change/flat, an increase, or decrease in wages, explain why.

The trend shows an overall slight increase in wages, starting with a low of $38,769 iin 2012, a high of $54,552 in 2014, and ending at a median salary of $46,528 in 2019. This data encompasses a broad spectrum of careers, from computer data scientists to transportation technicians. Students included in this survey completed one or more GIS classes, but may not have GIS as their primary occupation. The "Median Wage" of graduates reflects the varying composition and wide pay range of the jobs that require GIST skills.

F. Program 13.5 Course Completion

Foothill College Program Review 2020-2021
CTE Addendum 13.5 Units

Program 13.5 Course Completion					
Unduplicated Headcount	2015-16	2016-17	2017-18	2018-19	2019-20
Geographic Information Systems Technology	18	8	2	12	10
Sports Medicine	7	5	6	4	4

CTE courses offered between 2015-16 and 2019-20 that were used to retrieve completion counts include the following:

Geographic Information Systems Technology: GIST 11, 12, 52, 53, 54A, 58 and 59.

Sports Medicine: KINS 1, 16A/B/C and 62A/B/C/D/E.

1. In the data table, what does the data trend indicate about the number of students completing the 13.5 CTE units each year in the last five years within your program?

- [ ] the data trend shows an increase in the number of students completing the 13.5 CTE units
- [x] the data trend shows a decrease in the number of students completing the 13.5 CTE units
- [ ] the data trend shows no change and/or is flat in the number of students completing the 13.5 CTE units

2. If the data trend shows no change/flat, an increase, or decrease in the number of students completing the 13.5 CTE units, explain why.

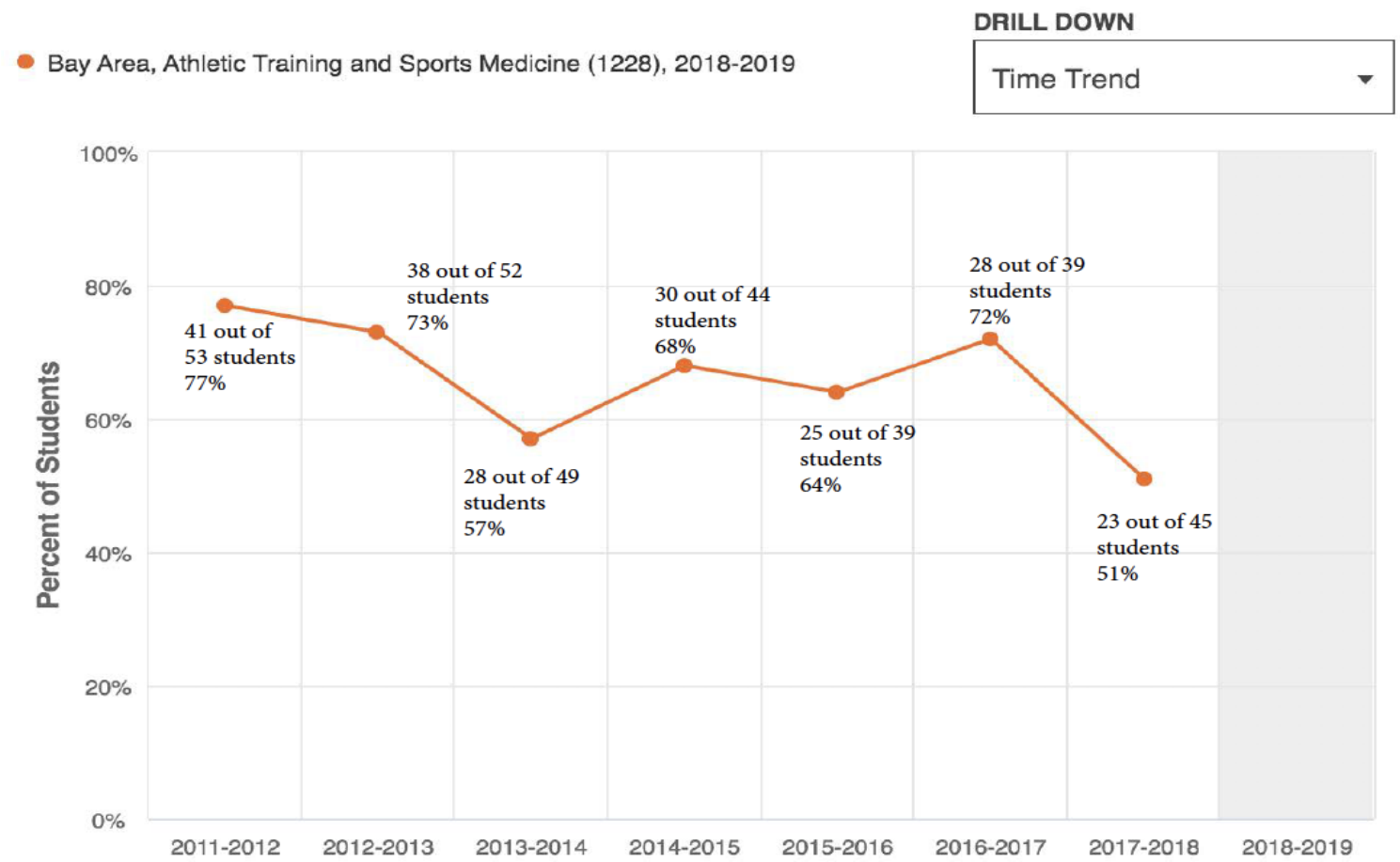
As the program moved online in 2018, the program struggled to have students complete their degrees/certificates as many students were "drop in" for specific skills and did not see the need to complete the full certificate. This problem is compounded by the GIST industry not having a formal accrediting body or licensure exam. Program faculty are working to encourage students to complete their full certificates, and are also encouraging students to apply for the lower level certificates that they may not realize that they qualify for.

G. Program Graduate Employment Rates

Graduate Employment Rates - Sports Medicine

Employed in the Second Fiscal Quarter After Exit

Among students who exited the community college system and did not transfer to any postsecondary institution, the proportion of students who were employed in the second fiscal quarter after exit

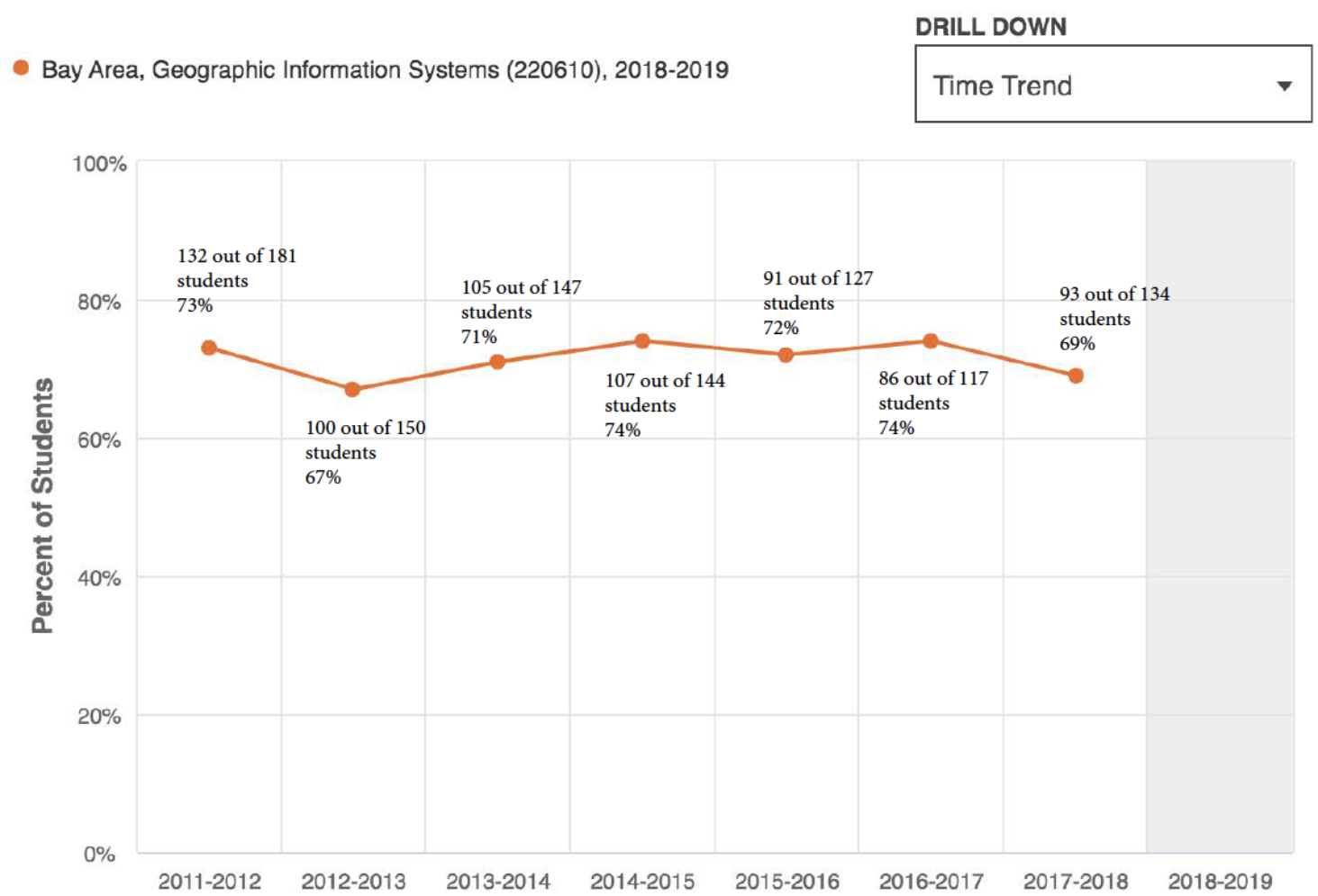


Source: *Chancellor's Office Management Information System, Employment Development Department Unemployment Insurance Wage File*

Graduate Employment Rates - Geospatial Tech & Data Sci

Employed in the Second Fiscal Quarter After Exit

Among students who exited the community college system and did not transfer to any postsecondary institution, the proportion of students who were employed in the second fiscal quarter after exit



1. In the data table above, what does the graduate employment rate indicate for certificate/degree completers (e.g., Within one year after Community College Completion)?

- [ ] the data trend shows an increase in graduate employment
- [ ] the data trend shows a decrease in graduate employment
- [x] the data trend shows no change and/or is flat in graduate employment

2. Describe the graduate employment rate trend for both certificates and degrees. If the projected data trend shows no change/flat, an increase, or decrease, explain why.

Due to the small number of certificate and degree completers in GIST in the Bay Area, the data table shows all students who took GIST classes and completed any degree or certificate (not necessarily GIST). The data reflects that GIS skills can help to enhance the employability of students as between 67% and 73% of students who took a GIS course as a part of their certificate or degree at any Bay Area Community College found gainful employment within two fiscal quarters.

Self-Study Checklist

Writers can use this final checklist for ensuring quality control before hitting the final submit button.

- [ ] Attended the Writer Orientation/Training in November
- [ ] Responses are supported by the data
- [ ] Engaged in discussion with IR Coach
- [ ] The Self-Study Report was written collaboratively with other program stakeholders
- [ ] The Self-Study Report was proofread by a collaborator

This form is completed and ready for acceptance.