

## 2023-24 Program Review

Program Name: Fire Technology

Program Contact: Christy Baird

Academic Year: 2023-2024

Status: Submitted for Review

Updated on: 9/29/23

## **INTRODUCTION: WHAT IS PROGRAM REVIEW FOR?**

The goal of program review is to assess how well our programs are doing. Program review asks us to:

- Reflect on the state of student learning or support in our disciplines and programs, by discussing:
  - efforts to achieve equity across student populations and modes of delivery;
  - results of assessment activities aimed at improving or researching student learning;
  - new challenges or changes to the program.
- Identify resources that we need to change and improve.

Though program review is tied to accreditation, ultimately, we want program review to be meaningful for us. This means we want to use program review to highlight and celebrate what is working, identify what isn't and to figure out what we can do about it. Program review also provides an opportunity to assess how those things work in practice, and work to improve our practices to be able to serve our students even better. It also serves to create cross-campus understanding and dialogue and make more informed decisions in our teaching and programs. Program review is also an opportunity to advocate for change and for resources by showing need and equity issues that we need additional support to be able to address.

### **1. Description of Program (200-400 words)**

- Provide a brief description of the program and how it supports the following:
  - [CSM Mission and Values Statements](#)
  - [CSM Statement of Solidarity](#)
  - [CSM's Strategic Priorities](#)
  - [SMCCCD's Strategic Goals](#)
  - [CSM Forward 2028 - Education Master Plan](#)
- Identify any factors, including federal, state, or local initiatives, that have impacted the program and the students served

The Fire Technology Program uses the District's Mission and Values Statements as a model to continue to focus its efforts on maintaining a student population that mirrors the communities it serves. The Fire Technology Program staff recognizes the importance of a diversified fire service workforce and is committed to seeking under-represented individuals for a career in the fire service.

The Fire Technology Program provides high-quality education and training for individuals pursuing careers in the fire service to explore career opportunities, satisfy prerequisite requirements for admission into the Fire Academy, obtain the knowledge needed for entrance into fire and emergency service careers, specialized courses, and/or to satisfy the requirements of

an academic certificate of achievement, AA or AS degree or transfer to another institution of higher education. Our mission is to provide students with the skills, and physical conditioning necessary to perform basic firefighting, emergency medical, and rescue duties while instilling the values, work habits and discipline expected of a firefighter. We are striving to be the most comprehensive, competitive, innovative, and professional fire academy in the region.

Our Fire Academy is accredited by the California State Fire Marshal and, in partnership with the San Mateo County Training Officers, offers state-of-the-art training with accredited and experienced teaching professionals/instructors.

The Associate Degree and Certificate programs incorporate the standardized Fire Technology curriculum identified by the offices of the California State Chancellor and State Fire Marshal. Our curriculum follows the National Fire and Emergency Services Higher Education (FESHE) model. Additionally, the CSM emergency medical technicians (EMTs) course is taught following the State of California's National Registry curriculum and is recognized in the top 5 in the state out of over 220 programs.

In the Fall 2021/22 academic year, the College of San Mateo Fire Club was formed to bring students together with common career goals. This very diverse group of students actively participates in many college functions, and community outreach events, and supports many local and regional fire service agency events.

The Fire Technology Program provides a clear and distinct pathway for students, particularly those from underserved populations to assist with a successful transition into the workforce.

Collaboration with the Veteran's Center, the nursing program, the police academy, and the San Mateo County Fire Chiefs helps to develop and strengthen educational offerings, interventions, and support programs that increase access & success for all students.

## **2. Results of Previous Program Review (200-500 words)**

### **a) Describe the results of your previous Program Review's action plan and identified equity gaps.**

- Previous Goals:

**Develop a new course to find and address gaps in physical abilities for individuals entering the fire academy.**

**Course developed: FIRE 721 Fire Academy Preparation**

This course prepares students for participation in the Firefighter Academy. Students receive an introduction to the daily requirements of a firefighter. Students perform physical exercises using fire hoses, ladders, ropes, tool operations, personal protective equipment, and stairs.

We have identified there is a significant gap in success rates for students who are female and/or small-statured individuals. Upper body strength continues to be an issue and is either deterring these students from participating in the academy or motivating them to work out. In the documentation 20.7 % of females withdrew from the Fire Tech Program.

Creating a fitness course to focus their efforts towards the career's physical demands would help these students understand and implement the techniques needed to be a firefighter.

**Develop a new course to find and address gaps in training for individuals entering the EMT class.**

**Course developed: FIRE 717 Emergency Medical Technician Preparation**

This course has provided instruction for individuals who are preparing for Emergency Medical Technician training. Topics include introduction to Emergency Medical Systems, the roles and responsibilities of an EMT, and expanded instruction on anatomy/physiology.

This course identified the significant gap in students who were not passing the EMT National Registry Test due to a lack of study habits and struggling with physical assessments of patients. These barriers may have been attributed to Covid.

The results of this course have increased the number of students passing the class and the National Registry Exam by 20%

**Sponsor a Fire Technology Club**

In the Spring of 2022, we developed a Fire Technology Club that is primarily designed to develop relationships among the Fire Technology students. In a few short months, the club has created a community among the Fire Tech students. The club is helping the students have a better understanding of what will be expected of them when they enter the Fire Technology courses, the EMT course, and the Fire Academy. The club is involved in various fundraising opportunities on and off campus

**Hire EMT Eqpt. Manager**

Additional hours to support the EMT Program as a whole will be requested through Resource Request and SWF funding.

**Develop a BLS Provider course**

Plans to develop this course are still in progress

This course is a pre-requisite to the EMT course

**Develop a testing course for FFI and FFII State Testing**

Plans to develop this course are still in progress

This course is a requirement of our accreditation.

**Develop Alumni Tracking System**

Plans to develop this course are still in progress

This system would help students to connect with alumni who have been hired in various fire departments as a point of contact.

**Identify and obtain a staffing app**

We have not located a fiscally responsible AP for staffing at this time

### 3. Current Program Review (200-400 words)

Please use the statistics below, which are college-wide, as a reference. Please refer to the Program Review website for individual program data.

College Stats 2022-23	Ethnicity	First Gen	Age	Gender	Total
<b>Headcount (unduplicated)</b>	Latinx 32% White 26% Asian 20% Filipino 7% Multiracial 7% Black 3% Pacific Islander 2% Unknown 3% Native American 0%	45% of our students are the first in their family to go to college.	66% 24 yrs. and under 18% Ages 25-34 17% over 35 yrs.	49% Female 48% Male 3% Non-disclosed or non-binary	13,180 students
<b>Enrollments (duplicated)</b>	Latinx 35% White 26% Asian 16% Filipino 6% Multiracial 8% Black 3% Pacific Islander 3% Unknown 3% Native American 0%	47% of enrollments were by students who are the first in their family to go to college.	76% 24 yrs. and under 13% Ages 25-34 11% over 35 yrs.	48% Female 50% Male 2% Non-disclosed or non-binary	37,014 enrollments

- a) **Student population equity:** Discuss any gaps in student success, persistence, satisfaction, utilization or enrollment across student populations (statistics provided for ethnicity, first-generation, age, gender and total enrollment), or student population served.
- Findings: What has changed from the previous program review?
  - Analysis: What factors do you feel contribute to these gaps?
  - Resources: If you were granted a resource request, please note what that was and the impact it had.
  - Plans to address opportunity gaps: What has your program done to address these gaps? Include information on:
    - interventions implemented
    - any successes in closing gaps
    - ongoing challenges

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Findings	Analysis	Resources	Plans to Address Opportunity Gaps
1. The new Fire Academy and EMT Prep courses have helped our students be more successful in the fire academy and in the EMT course.	These courses have given students a better idea of what to expect during the actual training. By better preparing the students for the high-unit courses, we have reduced the failure/attrition rate. Participation in these courses has allowed pathways without the financial investment or damage to their academic record.	Funds were granted for both prep classes for tools and equipment.	There is still a gap in physical abilities and strength in the upper body for women and small-statured students. As the prep courses, particularly the Academy Prep, exposes the individuals to the job requirements, it does not give them the tools and experience to change their upper body strength. The class that needs to be added is a firefighter physical fitness course.
2. There is still a lack of females in the Fire Technology Program.	Overall, staffing shortages is a critical issue in the fire service today. Adding to the already low numbers of women in the fire service.  20.7% of Females withdrew from the Fire Technology Program in 2022-2023	Funds were granted to assist with the Nor Cal Girl's Fire Camp. 40 HS girls were taught firefighter skills by over 50 female firefighters in the Bay Area.  Looking to host a women in the fire service discussion to build on the next steps. (After camp)	To attract and educate women in San Mateo County to pursue a fire service career and to get their education through the CSM Fire Technology courses. The female students get a chance to learn directly from professional female firefighters throughout the Bay Area.  Previously there was a total of two women in the instructor pool for the Fire Technology Program. We recently hired three additional women.
3. The CSM does not have a Firefighting Training Site	Students are required to travel to several training sites. Increasing costs for the students.	No	Working with Redwood City Fire and the Woodside Protection District to build a Training Tower in Redwood City. This creates a centralized training facility and eliminates excessive travel for students to several different training sites.

b) **Modes of Delivery equity:** Discuss any gaps in student success, persistence, satisfaction, utilization or enrollment, and student population served across different delivery modes. Please comment on in person services/instruction vs hybrid services options/instruction vs completely online services/instruction.

- Changes since last Program Review: What has changed, in terms of gaps, since last program review?
- Analysis of gaps: What factors do you feel contribute to these gaps?
- Plans to address opportunity gaps: What has your program done to address these equity gaps? Include information on:

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- interventions implemented
- any successes in closing gaps
- ongoing challenges

Changes since last Program Review	Analysis of Gaps	Plans to Address Opportunity Gaps
<p><b>1.</b> The Fire Academy has moved to 5 days a week, Monday-Friday. The academy previously was 3 days a week Friday-Sunday. The change in schedule is due to an increase in enrollment and the changes to the curriculum from State Fire Training.</p>	<p>This new schedule makes it difficult for the students to work and go to the Fire Academy.</p>	<p>The Fire Technology Coordinator has been working with the San Mateo County Fire Chiefs regarding equipment donations (saving the students money on rental equipment) Add the uniform and equipment rental to a lab fee for the academy so the students can use financial aid, the GI Bill or scholarship money. Use SWF to assist students with SFT Fees (See attached)</p>
<p><b>2.</b> There are currently no online Fire Technology Courses.</p>	<p>No online courses do not seem to have an impact on enrollment in the Fire Technology Courses. Most classes have 25-30 students</p>	
<p><b>3.</b> Identified deficiencies in instructional diversity</p>	<p>Very few women and minorities in the San Mateo County Fire Departments to recruit to teach at CSM</p>	<p>These issues are being addressed in the hiring process for the Fire Academy and the expansion of the Fire Technology program as a whole. The Fire Technology program will be working directly with the Educational Equity Committee, to integrate research-based practices in the interest of equity using professional development and developing and facilitating equity workshops on campus to close the gap.</p>

**(c) Challenges and Opportunities:** Describe any **other** particular challenges, opportunities, or other factors that impact the success of your program (e.g., natural or health disasters, assessing whether a degree program is meeting its learning outcomes, developing new degree programs or courses, adapting to a changing student population, keeping a flagging program alive, starting a learning community, resources, etc.).

### Challenge:

There is a shortage of paramedics. The trend was reported by fire departments across the region and the state. As more departments require some or all of their entry-level firefighters to be qualified paramedics, demand for qualified applicants has increased to the point that departments are struggling to fill vacancies. There is a nurse shortage, but there's also a paramedic shortage, not only in California but across the country. There are no Paramedic programs in San Mateo County. CSM would like to partner with the San Mateo County Fire Departments to begin to look at starting a paramedic program.

**Opportunity:**

Begin a Credit for Prior Learning program for firefighters in San Mateo County to come back to CSM and complete their AS degree.

**4. Planning**

a) **Discipline-level and SLO (Student Learning Outcomes) assessment/Student Services and SAO (Service Area Outcomes) assessment for 2023-2025:** Describe learning or area assessment plans for this Program Review cycle, **including any activities planned to address equity or delivery mode gaps.** Your summary should explain:

- SLO/SAO
  - What will your assessment focus on?
  - Is it discipline/program/service-specific or will it be interdisciplinary/a collaboration between programs or services?
  - Why is it prioritized (e.g., equity issue, key disciplinary issue, etc.)?
- Assessment plan
  - What is the planned activity or intervention?
  - Describe next steps and the timeline for your SLO/SAO assessment
- Resources for SLO/SAO assessment
  - What resources will you need to assess changes (i.e., PRIE support in the form of specific data, surveys, etc.)?

SLOs/SAOs	Assessment Plan	Resources for SLO/SAO assessment
1.		
2.		
3.		

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**A)Program goals**

Based on your current review of your program’s equity gaps, learning assessments and challenges and opportunities, identify specific goals and plans. Please note that whereas SLOs/SAOs involve assessing and measuring a specific skill or knowledge students will be able to do/understand upon successful completion of a course, program, service, and/or degree/certificate, program goals reflect overall aspects of your program or service you hope to improve.

Please note that closing equity gaps is a College-wide priority. If there are significant equity gaps in student success, persistence, satisfaction, utilization or enrollment, and student population served in your program, these should be addressed in at least one of your goals (see 3a and 3b).

For each goal, you should include:

- A brief description of the issue being addressed (equity gap, etc.)
- What actions you plan to take
- What measurable outcomes you hope to achieve
- A timeline
- Who is responsible
- What support do you anticipate needing in order to achieve your goals and plans, including:
  - Professional development activities
  - Institutional support
  - Collaborations
  - Training
  - Resources

Goal	Actions	Measurable Outcomes	Timeline	Responsible Party	Support Needed
1.Per the State Fire Training Accreditation We are required to have more fire academy oversight.	Hire two Fire Academy Coordinators to oversee the Fire Academy	Fulfill the State Fire Training Accreditation requirement and be granted our 5 year reaccreditation from the state of California	Fall 2023	Francisco	Funding for the two positions



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<p>2.Add 16 Coordinator hours to the EMT Program</p>	<p>Divide 16 hours up among the 3 instructors in the program</p>	<p>The program stays at a high level and stays in the top 5 in the state in over 220 programs.</p>	<p>Fall 2023</p>	<p>Francisco Carla Grandy</p>	<p>Ensure the College of San Mateo EMT course meets the EMT Certification standards provided through certifying entities and Local Emergency Medical Service Agencies (LEMSA) and the California Emergency Medical Services Authority. Revise and update course content and materials of instruction in accordance with new theory, application, and industry standards within the discipline or area of specialization.</p>
<p>3. Develop a new course to address the physical abilities gap for individuals entering the fire academy</p>	<p>Find Instructors Write up the course in Curricunet  Submit to the committee</p>	<p>Get the course approved by the Curriculum Committee</p>	<p>Fall 2024</p>	<p>Baird</p>	<p>Funding to start the course as an experimental course</p>
<p>4. Work with the counselors to assist them in understanding how the Fire Technology Career path works</p>	<p>Work with the Bay Area Regional Joint Venture to sponsor training with a few counselors to help</p>	<p>The training is scheduled  Counselors find value in the training.</p>	<p>Spring 2024</p>	<p>Baird Bay Area RJV</p>	<p>Funding to sponsor a few counselors to go to the training in Pleasanton understand CTE programs</p>
<p>5. Start a Paramedic Program.</p>	<p>Find a Paramedic with a Bachelor's</p>	<p>Hiring a person for research and collaboration with San</p>	<p>Spring 2025</p>	<p>Baird</p>	<p>Funding to assist in hiring for research.</p>

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There is a shortage in San Mateo County. There is no Paramedic Program in San Mateo County	degree who is interested in researching a paramedic program	Mateo County to start the program			
6. Start a Credit for Prior Learning Program to assist former CSM students who did not get their degrees to get an AS degree in Fire Technology	Work with Palomar, Miramar and Sierra College to start the program at CSM	Getting the program up and running to assist former CSM students who did not get their degrees to graduate from CSM with an AS degree in Fire Technology	Spring 2025	Baird	Time to work on the project
7. Develop an alumni tracking system for people taking Fire Tech classes at CSM To use these individuals as mentors for current students.	Work with the college tracking to track only Fire Tech Students	Beginning to collect data	Spring 2024	Baird	

**5. CE Only**

- a) **Review the program's available labor market data, as applicable, and explain how the program meets a documented labor market demand.**

## Demographics for College of San Mateo California Employment Development Department

DP05: ACS DEMOGRAPHIC AND HOUSING ESTIMATES  
2016-2020 American Community Survey 5-Year Estimates  
Geographic Area: San Mateo County

Subject	Estimate	Percent
<b>SEX AND AGE</b>		
Total population	765,623	765,623
Male	379,247	49.5%
Female	386,376	50.5%
Sex ratio (male per 100 females)	98.2	(X)
Under 5 years	43,088	5.6%
5 to 9 years	43,566	5.7%
10 to 14 years	43,926	5.7%
15 to 19 years	40,559	5.3%
20 to 24 years	41,632	5.4%
25 to 34 years	114,328	14.9%
35 to 44 years	109,794	14.3%
45 to 54 years	105,732	13.8%
55 to 59 years	52,082	6.8%
60 to 64 years	47,099	6.2%
65 to 74 years	69,542	9.1%
75 to 84 years	35,747	4.7%
85 years and over	18,528	2.4%
Median age (years)	39.8	(X)
Under 18 years	156,769	20.5%
16 years and over	627,075	81.9%
18 years and over	608,854	79.5%
21 years and over	587,179	76.7%
62 years and over	151,519	19.8%
65 years and over	123,817	16.2%
18 years and over	608,854	608,854
Male	298,640	49.0%
Female	310,214	51.0%
Sex ratio (male per 100 females)	96.3	(X)
65 years and over	123,817	123,817
Male	54,172	43.8%
Female	69,645	56.2%
Sex ratio (male per 100 females)	77.8	(X)
<b>RACE</b>		
Total population	765,623	765,623
One race	707,933	92.5%
Two or more races	57,690	7.5%
One race	707,933	92.5%
White	369,924	48.3%
Black or African American	18,104	2.4%
American Indian and Alaska Native	3,917	0.5%
Cherokee tribal grouping	125	0.0%
Chippewa tribal grouping	16	0.0%
Navajo tribal grouping	123	0.0%
Sioux tribal grouping	174	0.0%
Asian	225,027	29.4%
Asian Indian	24,733	3.2%
Chinese	91,436	11.9%
Filipino	72,118	9.4%
Japanese	9,025	1.2%
Korean	7,212	0.9%

Subject	Estimate	Percent
Vietnamese	4,775	0.6%
Other Asian	15,728	2.1%
Native Hawaiian and Other Pacific Islander	9,611	1.3%
Native Hawaiian	412	0.1%
Guamanian or Chamorro	380	0.0%
Samoa	1,744	0.2%
Other Pacific Islander	7,075	0.9%
Some other race	81,350	10.6%
Two or more races	57,690	7.5%
White and Black or African American	4,082	0.5%
White and American Indian and Alaska Native	3,098	0.4%
White and Asian	20,048	2.6%
Black or African American and American Indian and Alaska Native	390	0.1%
Race alone or in combination with one or more other races		
Total population	765,623	765,623
White	419,267	54.8%
Black or African American	26,261	3.4%
American Indian and Alaska Native	10,235	1.3%
Asian	254,134	33.2%
Native Hawaiian and Other Pacific Islander	14,845	1.9%
Some other race	104,467	13.6%
<b>HISPANIC OR LATINO AND RACE</b>		
Total population	765,623	765,623
Hispanic or Latino (of any race)	184,490	24.1%
Mexican	108,508	14.2%
Puerto Rican	3,795	0.5%
Cuban	1,647	0.2%
Other Hispanic or Latino	70,540	9.2%
Not Hispanic or Latino	581,133	75.9%
White alone	295,172	38.6%
Black or African American alone	16,772	2.2%
American Indian and Alaska Native alone	1,021	0.1%
Asian alone	222,208	29.0%
Native Hawaiian and Other Pacific Islander alone	9,398	1.2%
Some other race alone	4,058	0.5%
Two or more races	32,504	4.2%
Two races including Some other race	3,192	0.4%
Two races excluding Some other race, and Three or more races	29,312	3.8%
Total housing units	278,756	(X)
<b>CITIZEN, VOTING AGE POPULATION</b>		
Citizen, 18 and over population	505,583	505,583
Male	245,332	48.5%
Female	260,251	51.5%

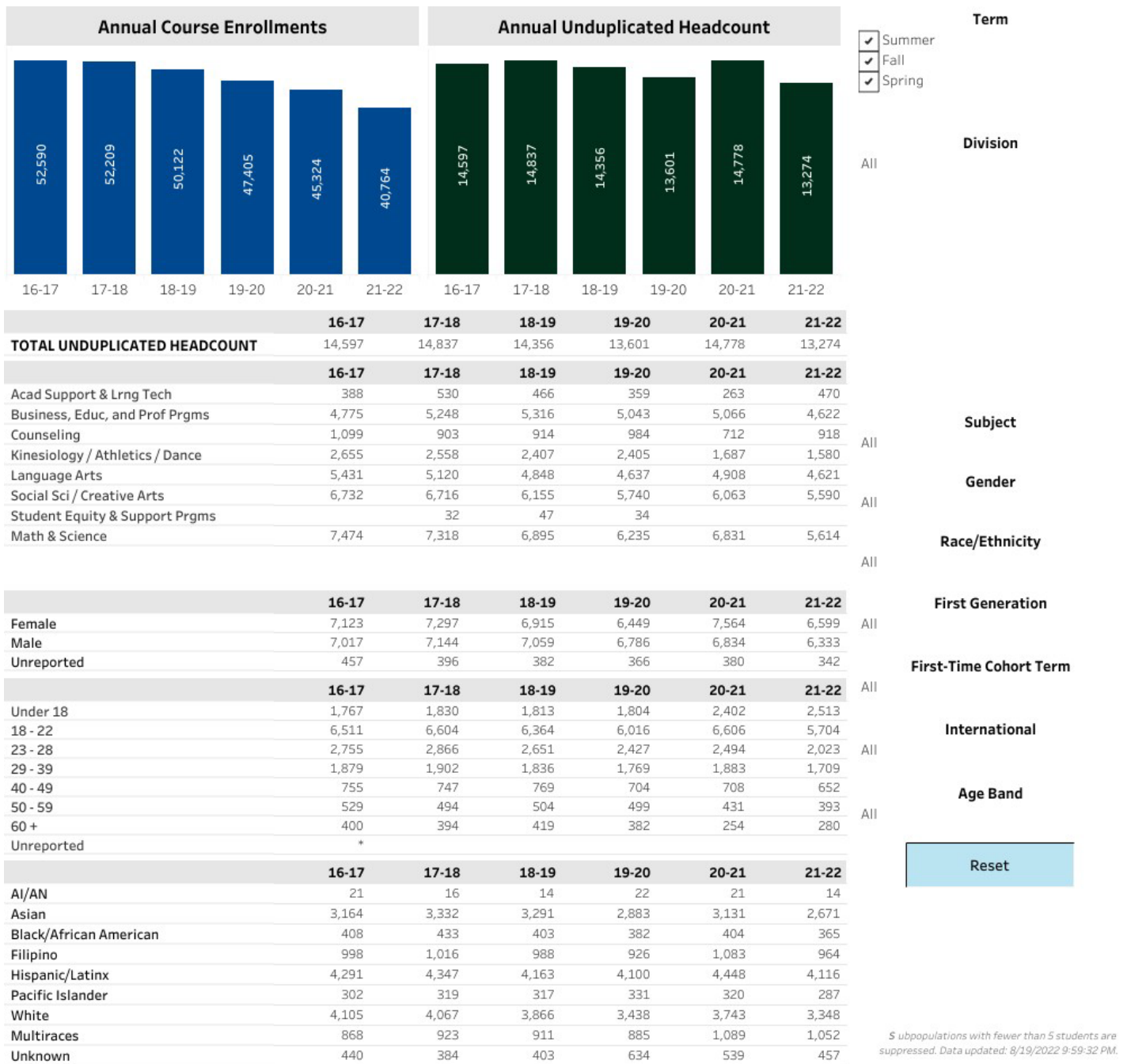
Source: U.S. Census Bureau, 2016-2020 American Community Survey

**Explanation of Symbols:**

1. An "\*\*\*" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

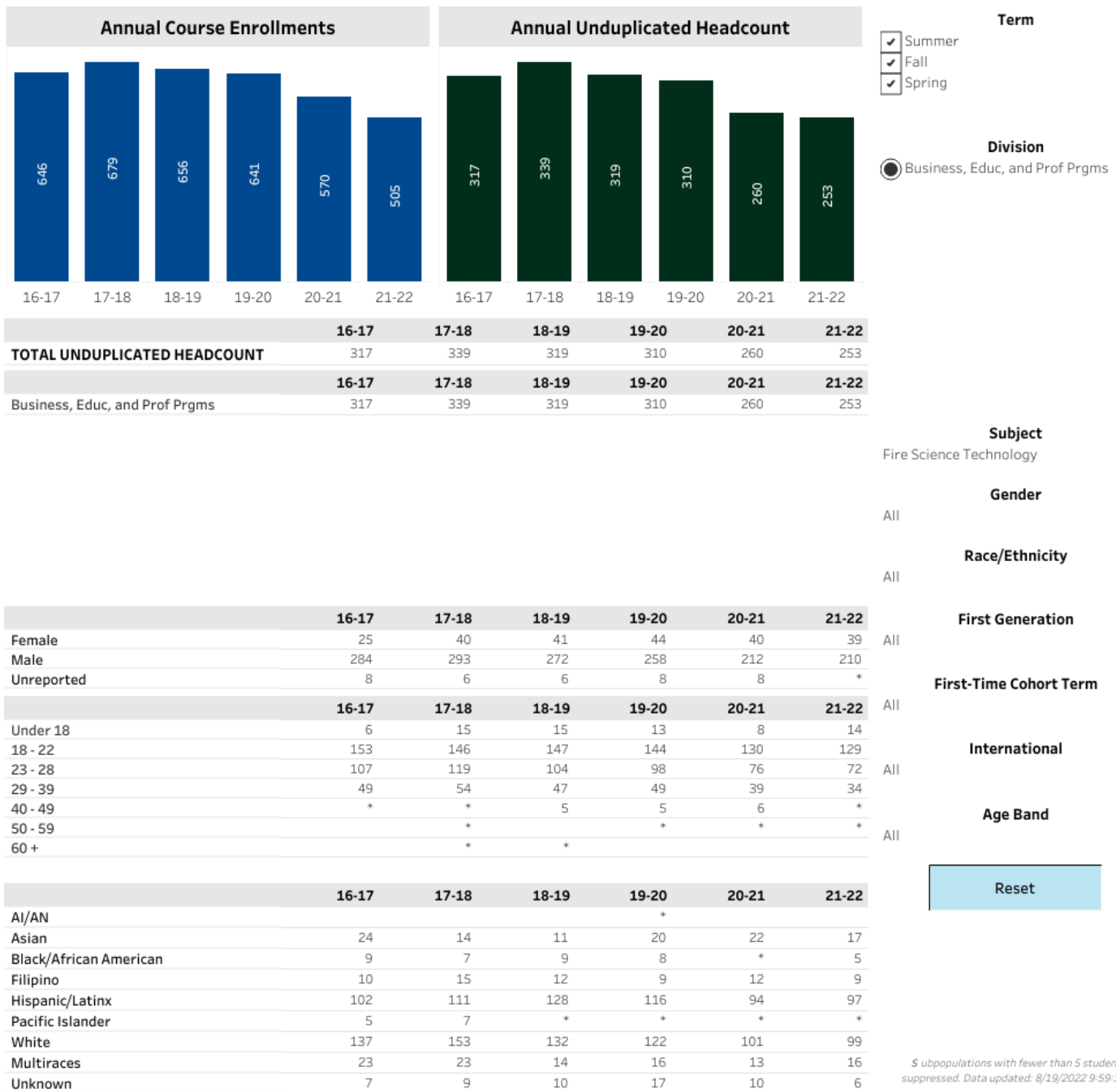
## Demographics for College of San Mateo

College of San Mateo Planning, Research, Innovation and Effectiveness dashboard



## Demographics for Fire Technology Program

College of San Mateo Planning, Research, Innovation and Effectiveness dashboard



\* Subpopulations with fewer than 5 students are suppressed. Data updated: 8/19/2022 9:59:32 PM.

The Fire Technology program places a high priority on instructional diversity and gender equity as necessary components of a quality community college program. Current identified deficiencies in instructional diversity are being addressed in the hiring process for the Fire Academy and the Fire Technology Program as a whole.

**b) Summarize student outcomes in terms of degrees and certificates. Identify areas of accomplishments and areas of concern.**

We need to create more completion certificates for students.

**c) Review and update the program's Advisory Committee information. Provide the date of the most recent advisory committee meeting and outcomes of the meeting (updates, changes, new members, etc.).**

College of San Mateo – Fire Technology

Advisory Board Meeting Agenda

Thursday, April 10, 2023

10:30 pm

Invitees:

Christy Baird, Coordinator Fire Technology,

Bruce Barron, Fire Chief

Ray Iverson, Fire Chief

Department

Jesus Magallanes, Fire Chief

Francisco Gamez, Division Dean Business/Technology,

Alex Kramer, Director of Workforce Development,

College of San Mateo

Central County Fire Department

San Mateo Consolidated Fire

South San Francisco Fire Department

College of San Mateo

College of San Mateo

III. Topics

A. Short-Term Goals

1. Partner with an Accredited FF 1 Academy (CSM) in order for San Mateo County Fire Agencies to expand their hiring pools to non-FF 1 and provide certification through the Academy.

2. Partnering in Certification classes such as FF Survival and Fire Control 3, among many others where we can combine resources and lower costs for all partners.

3. CSM to absorb some of the labor and materials cost in trade for utilization of outside facilities. Ex: Foster City Tower

-How do we solidify assistance with personnel in an MOU that everyone will agree on when the present members are no longer here?

-Need support from all departments at least until we can get more people tasks booked. Can only task book 2 people in a class at a time. Mot class you have to take 2 or three times to get signed off.

B. Long-Term Goals

1. Raise the Bar for the CSM Academy Goal would be that a San Mateo County Fire Agency could hire directly from the College Academy and accept that recruit without sending them to an additional Academy Fire Agency could hire a recruit and send them to the College Academy. One way or idea to accomplish this could be CSM could still run two academies per year. One could be similar to the present CSM Academy (Pre-Service Academy). The second could be an in-service Academy made up of hired FF Recruits and Students

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Adding adjustments to the course when we do curriculum updates in Fall

Physical Training

Possible flexible calendar

Adding additional hours to include an EMS portion, 1 more day of Confined Space, CPAT card prerequisite.

Would like to add a fitness course for Fire department training.

### 2. Regional Training Facility

**d) What strategies have you discussed in your recent Advisory Committee's meetings to meet the needs and challenges of getting people retrained and back to work?**

1. Collaborating with the San Mateo County Fire Chiefs to start a paramedic program at CSM.

2. To start a Credit for Prior Learning program to get prior CSM students who are now San Mateo County firefighters who did not complete their degree, back to CSM to graduate with their AS Degree.