

## Comprehensive Program Review

### A. Department Information

#### Mission

Please enter your department's mission statement here.

The Department of Meteorology exists to provide an approachable and holistic overview of the science behind Earth's atmosphere, how humans have impacted the atmosphere, and how we can undo the damage we have caused to it.

How does your program mission statement relate to the mission, vision and values of the college? (<https://www.deanza.edu/about-us/mission-and-values.html>)?

Our mission intertwines with the mission of the college though improving information literacy (by providing an approachable and holistic overview of the atmosphere), providing an awareness of how humans have impacted the atmosphere (understanding both the societal and personal responsibility of how we have damaged our atmosphere), and determining possible solutions to the damage caused to our atmosphere (which involves communication with others regarding what we have done to our planet, critically evaluating proposed solutions, and developing a civic capacity to participate in fixing the damage that we have caused to our planet).

#### Program Goals

Enter 1-3 goals for your department to be achieved by spring 2027. Each annual reflection will ask your department to report on progress in meeting your goals. Each goal should be aligned to your department's mission and the college mission. All resource requests and personnel requests should be aligned with your program's mission and goals.

Goal title	Goal description	Responsible parties	Collaboration with	Guided Pathways engagement	What evidence will be used to monitor progress?	How will you assess achievement of the goal?
Student Learning Outcomes	To have all student learning outcomes in our department evaluated, including but not limited to SLO's that have been recently developed	Alicia Mullens	n/a	n/a	Submission of SLO Assessments	An annual evaluation of which SLO's have been successfully evaluated, and which ones still need to.
Climate Stewardship Certificate	Have a certificate program regarding Climate Stewardship proposed, outlined, and submitted to curriculum.	Alicia Mullens	Several departments (Environmental Science, Geology, Astronomy, and VIDA)	The certificate would be offered through the Physical Sciences and Technology Village	A description of milestones will be provided as the project progresses	Achievement will be assessed by evaluating if the certificate program is in place, and if not, what steps are still necessary
SJSU Bridge Program	Exploration of options to develop a program in collaboration with San Jose State University's Meteorology Program (the only one in the CSU System) to offer classes allowing students to transfer at the junior level upon completion of their studies at De Anza	Alicia Mullens	SJSU's Department of Meteorology and Climate Science	Any bridge program would be implemented through the Guided Pathways Framework	A description of milestones will be provided as the project progresses	Achievement will be assessed by determining which obstacles to a bridge program (namely developing classes that could fit under De Anza's parameters) have been overcome.

#### Changes Imposed by Internal/External Regulations or Factors

Are there factors unique to your program that may affect your enrollment, success rates or staffing that RAPP should be aware of? (e.g., curriculum changes, program reorganization, noncredit curriculum, loss of personnel, legislative mandates, etc.)

A primary factor that is fairly unique to the department (along with the other Earth and Space Sciences departments) stems from the fact that our primary audience is General Education students who need a science elective (as opposed to a core GE course, such as English or Math, or a course imperative to their major, such as Chemistry or Physics), and so the department is more sensitive to factors that affect demand (such as course modality, and the overall approachability of our courses). In the post-pandemic educational environment, the department is still evaluating what blend of modalities best combines pedagogical soundness with the flexibility that modern students are increasingly demanding for their education. As such, the department has been seeking input from our students on what blend of modalities (synchronous/asynchronous, fully on campus vs hybrid vs fully online, etc) they prefer, and experimenting in course offerings that best meet student demand while maintaining appropriate levels of rigor.

### B. Enrollment Trends

#### Enrollment Variables and Trends

Enrollment Trends						
Physical Sciences/Math/Engin - Meteorology-FD						
	2018-19	2019-20	2020-21	2021-22	2022-23	5-yr %Inc
Unduplicated Headcount	723	861	893	746	691	-4.4%
Enrollment	814	1,108	1,130	962	894	9.8%
Sections	16	21	23	21	21	31.3%
WSCH	1,264	1,623	1,713	1,434	1,341	6.1%
FTES (end of term)	84	108	114	96	89	6.0%
FTEF (end of term)	1.8	2.2	2.5	2.2	2.2	21.0%
Productivity (WSCH/FTEF)	690	732	694	647	605	-12.3%

In the data table above, what does the Enrollment trend indicate? For definitions of enrollment terms, please see the glossary (<https://www.deanza.edu/ir/documents/Glossary.pdf>).

- the data trend shows an increase in Enrollment
- the data trend shows a decrease in Enrollment

the data trend shows no change and/or flat in Enrollment

### Reflect on Enrollment Trends

Discuss the factors that would help the college understand your programs' enrollment trends. How may these trends align with your program mission and goals?

None of the options on the above question best fit Meteorology's enrollment trends. The department has experienced an "upside down U" like trend, where enrollment rose substantially during the COVID-19 pandemic, and has declined in the previous two years. The department attributes this to being well-suited to offer online courses (which were already a large percentage of our course offerings prior to COVID-19) during the pandemic, and thus we were able to quickly and effectively meet increased demand for online classes. As the number of online options expanded during the later portion of the pandemic, and during the transition to a "post-pandemic" learning environment, student demand has become more evenly spread amongst the other General Education Physical Sciences departments. The good news is that preliminary enrollment data for the first two terms of the 2023-2024 school year show that enrollment has leveled off, owing to the department finding a better balance of modalities that are both flexible for students, and effective for instruction.

### CTE Programs - Statewide and Regional Labor Market Trends

CTE Programs Only

1. Review and summarize the Lightcast Analyst Occupational Outlook data for your CTE program (<https://foothilldeanza.sharepoint.com/:f:/s/dactedepartments/EiRTueQ8GrNLqItlQw2twpsBMFCs7X5djTVeo6Jss3W0Jg?e=1ybpMY>).
2. Cite current industry trends.
3. Provide an overview of your program advisory committee's recommendations relating to existing and new course and certificate/degree offerings. Cite additional data when applicable.

N/A

### D. Course Success

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#### Course Success

Meteorology-FD

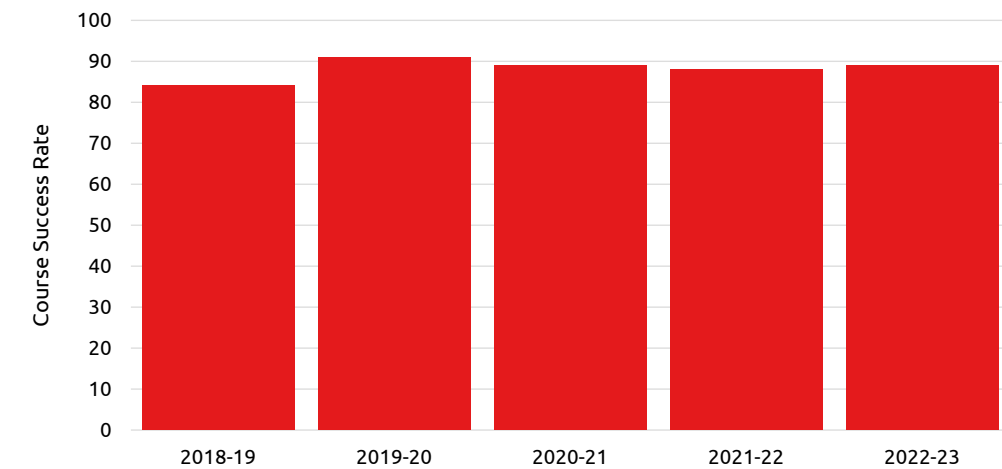
**Who uses this report:**

All users who want to further explore their enrollment or course success data.

**What is this report:**

This report is an extension of the Program Review Data Sheet. It has additional student characteristics and users can compare two groups of students at the same time.

**Limits:**



**Limits:**

Measures: Enrollments and Course Success Rate and Success Count

	2018-19			2019-20			2020-21			2021-22			2022-23		
	Enrollments	Course Success Rate	Success Count	Enrollments	Course Success Rate	Success Count	Enrollments	Course Success Rate	Success Count	Enrollments	Course Success Rate	Success Count	Enrollments	Course Success Rate	Success Count
<b>Measures</b>	814	84%	682	1,108	91%	1,008	1,130	89%	1,008	962	88%	847	894	89%	795

Data loaded 17-Aug-2023

In the data table above, what overall trends are you seeing in Course Success?

- the data trend shows an increase in Course Success
- the data trend shows a decrease in Course Success
- the data trend shows no change in Course Success

### Exploring Course Success Rate Trends

1. What could be factors that influence success rates in your department?
2. What strategies does your department have in place to increase or maintain current success rates?
3. Are there other trends that you see when exploring different courses in the same department (How to access success rates by course: [https://www.deanza.edu/ir/documents/How\\_to\\_Access\\_Your\\_Program\\_Review\\_Data.pdf](https://www.deanza.edu/ir/documents/How_to_Access_Your_Program_Review_Data.pdf))

#### 4. How do course success rate trends align with your program goals?

In the five year period, there has been a small, but noticeable increase in student success (from 84% in 2018-2019 to 89% in 2022-2023). During that time, the department has moved away from traditional textbook requirements in favor of Open Educational Resources, which has made our courses more equitable to students. Furthermore, during the pandemic, the department implemented more flexible policies which, while still holding students to high expectations of deadlines and quality of work, removed anxiety traps common in college classes, allowing students to be less anxious about missing an assignment, and more focused on understanding and appreciating the course material.

## Course Success with Disproportionate Impact (credit and non-credit)

Limits: 2022-23

### Who uses this report:

All users who want to explore student equity and disproportionate impact in course success.

### What is this report:

This report highlights student groups with a negative percentage point gap and student groups experiencing disproportionate impact. Data reflects credit sections. Student groups with "N/A" enrollment denotes suppressed data.

### How to interpret the data:

A negative percentage point gap means a student group has a lower success rate than the comparison group consisting of all students not in the student group being examined. When a student group is experiencing disproportionate impact, this means that (1) there is a negative percentage point gap and (2) this gap is unlikely to be due to chance. Programs are encouraged to prioritize discussions and address the student groups experiencing disproportionate impact.

### New features:

To display only student groups with disproportionate impact, click on the link "Click here to show only groups with disproportionate impact." To add a comparison unit that is one level higher (e.g., course level compared to department level), **be sure to select a college, division, department or course**, then click on the link "Click here to show and compare disproportionate impact with [X]".

### Success rate

The number of students receiving an A, B, C or P grade divided by the total number of students receiving a grade. Rate is rounded.

### Comparison success rate

The success of all students except for the group being examined (e.g., the comparison success rate for Latinx students is the success rate of all students who are not Latinx). Rate is rounded.

### Additional successes needed to erase percentage point

This value provides a way for practitioners to think of gaps in terms of student successes, and illustrates the number of additional successes needed to avoid a percentage point gap.

### Legend:

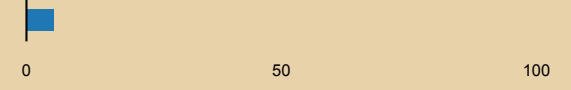
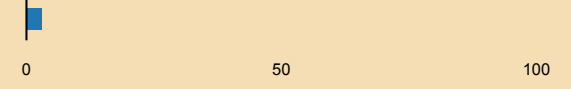

**Yellow:** Student groups experiencing a negative percentage point gap that is not statistically significant

**Orange:** Student groups experiencing disproportionate impact according to the Percentage Point Gap Minus One (PPG-1) method<sup>1</sup>

Currently showing all groups. [Click here to show only groups with disproportionate impact.](#)

[Click here to show and compare disproportionate impact with .](#)

Number of sections: 21

Student group	Enrollment at census	Student group success rate	Comparison success rate	Percentage point gap	Chart	Additional successes needed to erase percentage point gap
All Students (Meteorology-FD, 21 sections)	894	89%	89%	0		
Asian	440	90%	87%	+3		
Black	43	79%	89%	-10		5
Filipinx	57	93%	89%	+4		
Latinx	189	85%	90%	-5		11
Native American	N/A					
Pacific Islander	N/A					
Unknown ethnicity	51	98%	88%	+10		
White	111	89%	89%	+0		
Female	408	87%	90%	-3		13
Male	464	90%	88%	+2		
Non-Binary	0					
Unknown gender	22	100%	89%	+11		
Foster youth	N/A					
Individuals with disabilities	34	91%	89%	+2		
Low Income	361	86%	91%	-5		17
Not Low Income	533	91%	86%	+5		
Veterans	21	81%	89%	-8		2

<sup>1</sup>The PPG-1 method follows the CCCCCO method for calculating disproportionate impact. Disproportionate impact is when (1) a student group's PPG value is less than -2 (e.g., -3, -4, -5, etc.) and (2) the absolute PPG value is greater than the calculated margin of error. PPG is calculated by comparing a student group's success rate against the success rates of all students except for the group being examined (e.g., Latinx PPG is Latinx success minus the success of all students except for Latinx students).

In the data table above, what does the data indicate about the Success rate of various ethnic groups within your department compared to the comparison group for the most recent academic year? (i.e., as displayed in the Percentage point gap column)

The Percentage point gap between Asian students and all other students shows:

- there is no gap (e.g., 0)
- there is a negative gap of 5-percentage points or less (e.g., -5)
- there is a negative gap greater than 6 percentage points (e.g., -6)
- there is a positive percentage point gap (e.g., +2)

The Percentage point gap between Black students and all other students is:

- there is no gap
- there is a negative gap of 5-percentage points or less
- there is a negative gap greater than 6 percentage points
- there is a positive percentage point gap

The Percentage point gap between Filipinx students and all other students is:

- there is no gap
- there is a negative gap of 5-percentage points or less
- there is a negative gap greater than 6 percentage points
- there is a positive percentage point gap

The Percentage point gap between Latinx students and all other students is:

- there is no gap
- there is a negative gap of 5-percentage points or less
- there is a negative gap greater than 6 percentage points
- there is a positive percentage point gap

The Percentage point gap between White students and all other students is:

- there is no gap
- there is a negative gap of 5-percentage points or less

- there is a negative gap greater than 6 percentage points
  - there is a positive percentage point gap
- The Percentage point gap of one additional group of your choice:
- there is no gap
  - there is a negative gap of 5-percentage points or less
  - there is a negative gap greater than 6 percentage points
  - there is a positive percentage point gap
  - not applicable

### Exploring Gaps in Successful Course Completion by Ethnicity

1. What differences do you see in successful course completion rates by ethnicity?
2. What are your thoughts on these differences?
3. Are there other trends that you see when drilling into the data that may be important for your department to explore (e.g., foster youth, individuals with disabilities, low income, veterans)?
4. Which additional student group did you choose to explore and why?
5. How do these trends align with your program's mission and goals?

The largest success gaps are for Latinx students (-5) and Black students (-10, however, this is not statistically significant). While there are obstacles to success for every ethnicity, a combination of cultural norms (such as taking care of relatives, family size), and income disparity (which tends to be more pronounced for Black, Latinx, Pacific Islander, and Native students) provide additional obstacles to success for our Black and Latinx students.

There is also a noticeable success gap for women (-3), low income students (-5), and veterans (-8, but not statistically significant).

### Teaching and Learning Strategies

1. What teaching and learning strategies might be helpful in narrowing any gaps in successful course completion?
2. How do the listed teaching and learning strategies align with your program's mission and goals?

During the unique educational environment we found ourselves in during the COVID-19 pandemic, the department experimented with a number of teaching strategies that have proven fruitful in better engaging students and setting them up for successful completion:

1. Increased flexibility and a move away from higher cost course materials in favor of easier to find and more affordable materials. - With ever changing work schedules and the general stresses of the pandemic, many students needed a learning environment that was approachable and flexible. The department achieved this by moving many courses to a hybrid format where traditional lectures were delivered asynchronously and synchronous times were devoted to discussion and activities applying the course material. This gave students who needed extra time to follow along with lessons the opportunity to rewatch lessons they found challenging, while also shortening required synchronous class sessions, allowing students to build course schedules that better fit their needs. The department has also moved towards handouts/OER materials, which has eliminated the barrier of textbook cost for our students.
2. More hands on, application based activities. - As we transition to a "post-COVID" learning environment, the department has decided to maintain a hybrid format for all on-campus classes, moving "lecture" portions to online videos while allowing for more hands on activities during on-campus sessions. This has been made possible with the use of a computer lab (S42) as our primary classroom, and the acquisition of instructional materials (such as the Kestrel 3500 pocket weather meters) to do field activities that demonstrate the concepts covered in lesson videos.
3. Discussions and "road checks" - In addition to hands-on activities, some class time has also been devoted to reviewing and doing "road checks" ("how it went" discussions in regards to the course material) where students can discuss material that is particularly difficult. This has resulted in an improvement in student understanding (demonstrated in improved accuracy of submitted work and higher exam scores), while keeping students engaged (and more eager to attend class).

### Trends in Awards

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### Degrees and Certificates by Ethnicity

Meteorology-FD

**Who uses this report:**

All users who need degree and certificate data.

**What is this report:**

This report provides the degree and certificate counts by college, division and department. Additionally, all users could explore degree and certificate awarded by ethnicity and gender.

Data loaded 24-Oct-2023

### No data returned for the criteria selected

In the data table above, what are the trends in regard to the number of awards within your program?

Trends in Associate Degrees awarded show:

- an increase in the number of Associate Degrees awarded
- a decrease in the number of Associate Degrees awarded



- no change in the number of Associate Degrees awarded
- Not applicable

Trends in Associate Degrees for Transfer awarded show;

- an increase in the number of Associate Degrees for Transfer awarded
- a decrease in the number of Associate Degrees for Transfer awarded
- no change in the number of Associate Degrees for Transfer awarded
- Not applicable

Trends in Credit Certificates awarded show:

- an increase in the number of Credit Certificates awarded
- a decrease in the number of Credit Certificates awarded
- no change in the number of Credit Certificates awarded
- Not applicable

Trends in Non Credit Certificates awarded show:

- an increase in the number of Noncredit Certificates awarded
- a decrease in the number of Noncredit Certificates awarded
- no change in the number of Noncredit Certificates awarded
- Not applicable

### Reflecting on Trends in Awards

1. What trends do you see across awards in your department?
2. How do the trends in awards align with your program's mission and goals?

N/A

### Reflecting on Award Offerings

1. For each program leading to an award, identify any courses that have not been offered in the last two years. Briefly explain why the courses have not been offered. For courses that will not be offered, how does your program plan to update the program so that students can complete the requirements?
2. Based on a review of course offerings and the number of awards offered and conferred, is your department planning on removing any degrees or certificates from the college catalog? If so, please list those being removed and a short explanation as to why.
3. Does your department have any plans to offer new degrees or certificates? If so, please list and provide a short explanation as to why.

The department is particularly interested in launching a Climate Stewardship certificate, which would focus on developing information literacy in the complex causes of Climate Change (both scientifically and socially/politically), and exposing students to potential actions they can take to both mitigate and adapt to future climate change. As our earth continues to warm (2023 is currently on track to be the warmest year on record, and 19 of the 20 warmest years on record have occurred in the 21st century), it's imperative that our students develop a stronger knowledge of the causes and threats of climate change, while also developing a civic capacity to be able to be involved in the solution to climate change. The goals of the certificate are to be interdisciplinary, to allow students to intentionally take a number of General Education courses (such as Environmental Economics, Political Science, and Environmental studies) while combining the knowledge and capacity developed in those courses to develop an action plan for becoming more sustainable in their everyday lives.

## Staffing Trends

### Faculty Workload

Faculty Workload						
Physical Sciences/Math/Engin - Meteorology-FD						
	2018-19	2019-20	2020-21	2021-22	2022-23	5-yr %Inc
Full Time Load	1.0	1.0	1.0	1.0	1.0	0%
Full Time %	55.3%	43.1%	40.9%	45.5%	45.5%	-18%
Overload	0.2	0.4	0.6	0.6	0.5	138%
Overload %	10.5%	19.2%	23.7%	26.4%	20.7%	97%
Part Time Load	0.6	0.8	0.9	0.6	0.8	20%
Part Time %	34.2%	37.7%	35.4%	28.2%	33.8%	-1%
Total FTEF	1.8	2.2	2.5	2.2	2.2	21%

What trends do you see in the last five years in regard to the Full Time %? (i.e., percentage of classes being taught by full time faculty, not including overload or summer)

- the data trend shows an increase in Full Time %
- the data trend shows a decrease in Full Time %
- the data trend shows no change in Full Time %

### Staffing Needs

Provide a brief overview of your department's staffing needs. Personnel requests are to be submitted on a separate form.

1. What are full time faculty needs to ensure the program's health, growth or vitality?
2. What are classified staffing needs to ensure the program's health, growth or vitality?
3. What strategies does your program have in place to ensure students are being successful when faced with the current staffing ratios?
4. What strategies does your program have in place to retain new faculty, if applicable?

There are no needs for additional faculty or classified staffing at this time. However, the department is interested in exploring the option of hiring a tutor for students who are struggling in their meteorology courses.

### Assessment Cycle

#### Student Learning Outcomes Assessment Cycle

Navigate to <https://www.deanza.edu/slo/#post> which will take you to an accordion listing of SLO assessments under “Student Learning Outcomes and Assessments Summaries by Division”

1. Summarize the dialogue that has resulted from SLO and/ or PLO assessments.
2. What specific strategies has your department implemented, or plan to implement, based on the results of the SLO/PLO assessments conducted?
3. How do these strategies align with the program's mission and goals.

Over the past several years, the department has been in the process of revising and clarifying the SLO's for each course following the previous SLOAC. Previous SLO's were oftentimes difficult to meaningfully assess, making the data collected less useful in improving the department. During the COVID-19 pandemic, the department paused assessment of SLO's and instead worked on the aforementioned efforts of revising them. Now that the department has revised the SLO's for each of our courses, and the educational environment we find ourselves in has relatively stabilized (compared to the uncertainty during the pandemic), we are ramping up efforts to freshly assess our SLO's. Furthermore, in the development of a new certificate program, we will begin developing and implementing a set of Program Learning Outcomes for the department as well.

### Dean/Manager Comments

The analysis of data and the program is well done in this review. We are still trying to find a correct mix of online and in person modalities to better serve our students. The enrollment does show an up swing this first quarter of 2023-24 which is very promising.

**STOP. Do not submit form. Please inform your dean/manager when the form is complete. They will submit the form when they have added their comments above.**

This form is completed and ready for acceptance.