Comprehensive Program Review

A. Department Information

Mission

Please enter your department's mission statement here.

De Anza College's Astronomy Department challenges students to attain a deeper understanding of the physical universe, its history, and humanity's place within it. The department supports students in several ways as they meet this challenge and become more fully-developed citizens of the cosmos. The structures of challenge, support, and inspiration include presenting information to students in as vivid and memorable a manner as possible, including (but not limited to) the use of the De Anza College Planetarium. Students in Astronomy are more than mere vessels for information, as the department provides them with opportunities to develop their skills in gathering and critically evaluating information about the universe, both individually and in collaboration with their peers. Through these endeavors, students become part of the international, world-spanning culture that is science.

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)?

The shared work of students and faculty in fulfilling the Astronomy department's mission also helps fulfill certain Institutional Core Competencies. Specifically, this includes the Information Literacy and Critical Thinking core competencies, as well as "appreciate the complexity of the physical world" (from Civic Capacity for Global, Cultural, Social and Environmental Justice).

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?
Revise SLOs and SLO assessment methods	Evaluate the SLOs in all ASTR courses for relevance and effectiveness towards supporting student achievement. Following this, craft an SLO assessment process for each course that maximizes the gathering of useful data while minimizing the struggle associated with gathering it.	ASTR full-time faculty	ASTR part-time faculty	Maximizing the effectiveness of instruction through judicious use of SLO assessment will help the transfer students (who make up most of ASTR's enrollment, as far as we can tell) to stay on their paths towards transfer.	Records of inter-departmental discussions about SLO revision, and development of a list of changes to be made to SLOs	Any changes to ASTR SLOs will be submitted to the Curriculum Committee by the end of Spring 2027.
Review ASTR course offerings	Compare the department's slate of General Education courses with G.E. offerings at other 2-year and 4-year colleges, and decide whether or not to offer any new and/or different G.E. courses	ASTR full-time faculty	ASTR part-time faculty	A slate of modern, up-to-date G.E. courses that are designed to be achievable by students while still maintaining a reasonable, moderate degree of rigor will help students get on, and stay on, the path towards transfer.	Records of inter-departmental discussions about course offerings, and development of a list of changes to be made to the course offerings if the departments decides that changes would benefit students	Any course revisions or deletions, along with proposals for any new courses, will be submitted to the Curriculum Committee by the end of Spring 2027.
Research and develop effective uses of technology in Astronomy education	Continue to learn and innovate in two areas: 1) Best practices for using the De Anza Planetarium to help students understand the visual and spatial concepts so common in Astronomy, and 2) Best practices for using technology other than the Planetarium, such as the computer simulation tools we use in the Astronomy lab course and in our online courses.	ASTR full-time faculty	De Anza Planetarium staff, ASTR part-time faculty, the larger community of Astronomy education researchers	The use of appropriate instructional technology, both by instructors (such as when presenting in the Planetarium) and by students (such as in online classes or on-campus collaborative exercises) will enable students to do the three things listed under the Physical Sciences and Technology meta-major: Explore, Experiment, Discover	Yearly summaries of new applications of educational technology and assessments of its usefulness	Spring 2027 written summary of what the department has learned about educational technology in the last four years

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.)

The main set of factors affecting the Astronomy program are the same set of hard-to-define factors that caused the (now roughly decade-long) overall enrollment decline for the college.

B. Enrollment Trends

Enrollment Variables and Trends

Enrollment Trends
Physical Sciences/Math/Engin - Astronomy-FD

	2018-19	2019-20	2020-21	2021-22	2022-23	5-yr %Inc
Unduplicated Headcount	1,858	1,467	1,546	1,401	1,555	-16.3%
Enrollment	1,935	1,562	1,675	1,477	1,661	-14.2%
Sections	24	25	27	24	29	20.8%
WSCH	3,173	2,552	2,720	2,412	2,721	-14.3%
FTES (end of term)	210	169	180	160	181	-13.8%
FTEF (end of term)	3.5	3.3	3.2	2.9	3.5	-0.2%
Productivity (WSCH/FTEF)	902	769	850	836	775	-14.1%

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?

For decades, Astronomy classes were extremely large and numerous, providing the College with very significant apportionment. The same general decrease in enrollment that has affected the College, the District, and colleges across the country has come for Astronomy as well, compared to 15 or 20 years ago. However, enrollment in online classes has remained strong since the start of the pandemic, and on-campus enrollment has been strong as we begin the 2023-24 school year.

Certain fundamental questions remain, such as the extent to which class sections can (or can't) be brought back to campus. As an example, Astronomy used to maintain a robust schedule of evening classes, but it is possible that general-education classes in the evening might never become viable again, with students choosing to take online classes instead. Questions like these could be part of a valuable campus-wide conversation about enrollment and strategic planning.

An opportunity to reflect on enrollment trends might seem like a time to unveil some magic plan to increase enrollment, but no such magic suggests itself. Instead, the Department's mission statement and goals are intended to provide a fresh start, now that a new full-time instructor has come to the College. The mission statement reflects an emphasis on the fundamentals of general-education science education, with an eye towards making the Astronomy courses vivid and memorable, while maintaining high standards and a supportive environment for students. The Goals are designed to assess progress towards these ends, such as by crafting an entirely new Student Learning Outcome assessment process, and learning how to effectively use technology in education. It is the Department's hope that this new beginning can continue the positive start it has experienced in terms of enrollment in Fall 2023.

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/EiRTueQ8GrNLqltlQw2twpsBMFCs7X5djTVeo6Jss3W0Jg?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

saved report - pivot

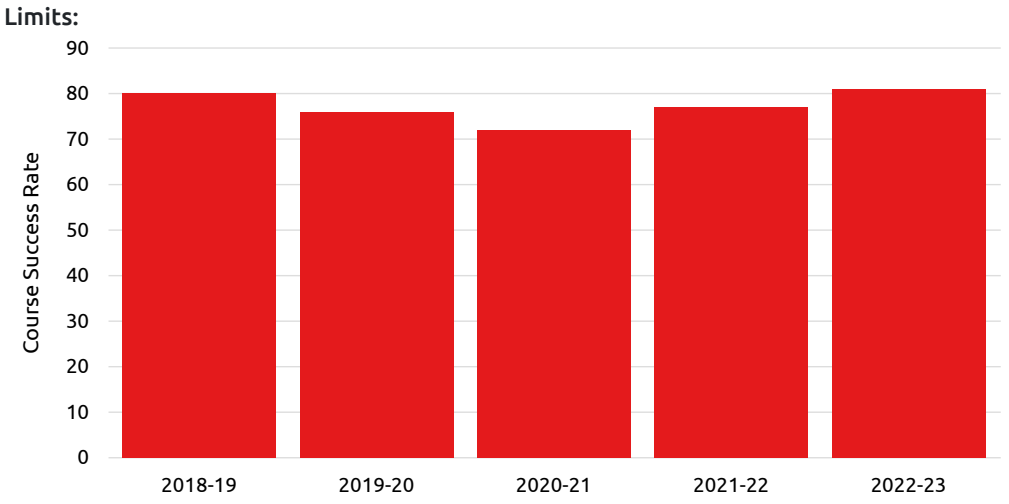
Course Success

Astronomy-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
Measures	1,935	80%	1,554	1,562	76%	1,188	1,675	72%	1,212	1,477	77%	1,144	1,661	81%	1,346

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)

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

It seemed most reasonable to describe the "dip-followed-by-a-rise" graph of success data as being flat over the last five years. The lowest success rate in the last five years was during the first year of fully-online, pandemic-era instruction. Students unfamiliar with online instruction might have been at their lowest level of preparedness for that mode of delivery at that time.

The Goals listed earlier in this Program Review document are designed to increase student success. Since the introduction of Student Learning Outcomes in the mid-2000s, the Astronomy department has never had a coherent strategy or workflow for writing SLOs, planning their assessment, assessing them, and modifying instructional techniques based on those assessments. Goal #1 is to fully rebuild the SLO process within the department. This is a grand experiment, whose aim is, hopefully, to increase student success.

Goals 2 and 3 are also focused on student success. To accomplish Goal 2, the department will assess whether or not its current slate of courses is the best way to provide General Education survey courses in Astronomy which will not only interest and inspire students, but help them towards their transfer and/or Associate-degree goals. Goal 3 is the investigation and

implementation of best practices with educational technology, which is also aimed at increasing student success.

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[1]

Currently showing all groups. Click here to show only groups with disproportionate impact.

Click here to show and compare disproportionate impact with .

Hide cells with fewer than 10 students

Physical Sciences/Math/Engin - Astronomy-FD — 2022 Summer to 2023 Spring
Number of sections: 29

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 (Astronomy-FD, 29 sections)	1,661	81%	81%	0		
Asian	584	88%	77%	+11		
Black	60	70%	81%	-11		7
Filipinx	124	83%	81%	+2		
Latinx	543	71%	86%	-15		82
Native American	N/A					
Pacific Islander	16	75%	81%	-6		1
Unknown ethnicity	53	89%	81%	+8		
White	274	87%	80%	+7		
Female	774	80%	82%	-2		12
Male	854	82%	80%	+1		
Non-Binary	0					
Unknown gender	33	82%	81%	+1		
Foster youth	N/A					
Individuals with disabilities	47	87%	81%	+6		
Low Income	721	74%	86%	-12		88
Not Low Income	940	86%	74%	+12		
Veterans	11	82%	81%	+1		

[1]The PPG-1 method follows the CCCCO 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)
- [x] 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
- [x] 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
- [x] 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
- [x] 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
- [x] 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
- [x] 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?

Course completion rates by ethnicity are similar to those seen in previous years, with some groups, such as Latinx and Low-Income students, having the largest negative gaps in success rates.

In reflecting on success rates, one of the biggest unknowns is the effect of the shift to mostly online courses. Although the department is having success with bringing some sections back to campus, it is still the case that online courses are the main source of enrollment. This raises two main points for further consideration:

First, it would be easy to assume that student success would automatically increase if most (or all) instruction was on campus, as in the old, pre-online-education days. Such an assumption might or might not be warranted. Some students may have always struggled with absenteeism, lack of basic study skills, lack of time to study outside of class, and all the other factors that go into basic "studentship". Issues as deep as low "studentship" levels may be considerably more intractable than can be solved by something like a shift to on-campus courses.

Second, it is not clear that such a shift, even if it helped student success, could even be made to happen. Online enrollment is still very strong, and may continue to be very important for the College's apportionment. Offering on-campus sections, on the assumption that students will automatically fill them, has already proven to be challenging.

The additional group explored in this Program Review was low-income students. This group has a -12 percentage point gap. This might be due to limited access to the equipment, experience, and study environment required to succeed in online courses, for example. Or it might be due to the various struggles to achieve a high level of general 'studentship' that were described above.

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?

There are a number of strategies that fall under the heading of "active learning". The department's new full-time instructor has training and experience in a number of these techniques, and is implementing them in their courses. The other, older full-time instructor has less experience with or knowledge of these techniques, but is learning how to implement one of them (in-class "clicker" questions) in their Geology on-campus classes.

The department's Goals, particularly its re-starting of the whole SLO process and its effort to explore effective use of technology, are specifically designed to try and determine which teaching and learning strategies will be most effective for increasing student success.

Trends in Awards

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Degrees and Certificates by Ethnicity

Astronomy-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.

N/A

Staffing Trends

Faculty Workload

Faculty Workload
Physical Sciences/Math/Engin - Astronomy-FD

	2018-19	2019-20	2020-21	2021-22	2022-23	5-yr %Inc
Full Time Load	1.9	1.1	1.0	1.0	1.7	-10%
Full Time %	53.5%	33.4%	31.5%	35.0%	48.2%	-10%
Overload	0.9	0.3	0.3	0.0	0.2	-78%
Overload %	25.0%	7.8%	9.9%	0.0%	5.5%	-78%
Part Time Load	0.8	2.0	1.9	1.9	1.6	116%
Part Time %	21.4%	58.8%	58.6%	65.0%	46.3%	116%
Total FTEF	3.5	3.3	3.2	2.9	3.5	0%

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?

The Astronomy department is returning to the overall staffing level, and level of full-time instruction, that it had circa 2018-2019. The changes that occurred in these numbers during the last five years were due to three main factors:

First, the last of the department's long-time full-time instructors had retired at the end of the 2018-2019 school year. The two full-time instructors in question had been responsible for enormous enrollment during the pre-enrollment-decline years of the 1990s and 2000s. From Summer 2019 until Fall 2022, the only full-time instructor in the department split their teaching duties between Astronomy (their second subject) and Geology, which is their primary FSA and the area in which they have the most education, research experience, and teaching experience.

Second, new part-time instructors were added to the department in the 2019-2020 timeframe, on the assumption that a new full-time instructor would be difficult or impossible to hire for many years, based on assumptions about budget trends which were made during that period.

Third, the department was able to hire a new full-time instructor for Fall 2022. This brought overall staffing levels and full-time instruction levels closer to what they had been in the 2010s.

At the present time, the department is not pursuing any additional staffing.

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.

As described above under Goal 1, the Astronomy department will begin a review and rebuilding of its SLOs and SLO assessment workflow, starting in the 2023-24 school year. The department has never had an integrated system for collecting, examining, and learning from SLO data.

Experts in SLO at the College can assist the department in the following ways:

First, with training in how to use tools like eLumen; such training is already being provided by the Academic Senate and Staff Development.

Second, by providing as much clarification as possible regarding the role of part-time instructors in the SLO workflow. At present, and for the foreseeable future, the department will consist of one full-time instructor, one full-time instructor who is split between Astronomy and Geology, and four part-time instructors. Given the other constraints on the schedules and workloads of the part-time instructors, it is understandable that they might not see a significant role for themselves in the SLO process. Any clarification the department can get, regarding what contractual (or other) expectations and opportunities exist for part-time instructors, vis-a-vis SLOs, would be extremely helpful. In short, the two full-time instructors can formulate an SLO workflow, collect data, and discuss it fairly readily. But it would really help to know what role the part-time instructors are expected to play.

Dean/Manager Comments

As seen in the data, although the enrollment declined in the pandemic years, we are on an upswing and getting back some of that enrollment in our very popular Astronomy classes. Having hired a very equity minded and passionate fulltime faculty, we have gained back the stability of our course offerings and consistency of education for our students. Astronomy department continues its partnership with Community Education division and we regularly use the Planetarium which adds to students deeper understanding of our universe and content covered in their classes. Our Astronomy faculty continue to incorporate daily events in their classes and try to find ways to connect with their diverse students. They offer combination of online and in person classes to support their students.

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.