



Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Science, & Engineering / Astronomy (ASTR) For Planning Years: 2026-2027

Name of person leading this review: Mark McGovern

Names of all participants in this review: Mark McGovern

Part 1. Program Overview: Briefly describe how the program contributes to the district mission

Astronomy provides courses that satisfy general education requirements. Completion of these courses allows students to fulfill degree requirements or enroll in upper division courses and programs at accredited four-year institutions through our articulation agreements.

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the Success & Retention and Program Award data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
• What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the Success & Retention data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
• Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the Strengths and Accomplishments section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

The astronomy discipline offers three classes: introductory astronomy, honors introductory astronomy, and astronomy lab. The discipline offers an exciting option for students looking to satisfy their general education needs in science. For majors that are undecided, the discipline offers a wide range of exposure to all areas of STEM that can spark the interest of a student leaning toward a STEM-related field. The astronomy curriculum is unique in that its courses focus on the future of humanity and the role that science plays in establishing a successful one. It widens the cultural and global perspective of the student in a way that no other course can and thus strongly supports the Institutional Learning Outcomes (ILOs) of the college. This past academic year saw the development of honors astronomy, which strengthens the variety of honors courses offered by the college.

The VSL (Virtual Science Lab, aka planetarium) is constantly utilized for outreach opportunities. On an almost weekly basis, K-12 groups are exposed to the type of education and experience that can be typically found in a college setting. This promotes not only STEM-related fields but also excites students to desire to continue their education at AVC and beyond. In addition, we have started to use the VSL and astronomy lab equipment to create events for the campus and the public. In recent years, the division has hosted eclipse viewing parties and nighttime observing opportunities for both AVC members and the wider community of the Antelope Valley.

For courses within the discipline, we have been able to maintain high success (> 80%) and retention (> 95%) rates, which stay consistently above the overall college average. Regarding equity, retention rates by gender are relatively high (93% for women, 97% for men), which is well above the college average. Success rates show similar success rates (78% for women; 85% for men,) which were above the college average for men and on par for women. The highest rates for retention and success for race/ethnicity are found among Hispanic/Latine (96% and 80%, respectively, this past year) and White Non-Hispanic (94% and 86%, respectively, this past year).

Each year, the discipline offers 3 sections of online astronomy that can serve up to 144 students.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The discipline will continue its outreach efforts by getting the word out to a greater number of K-12 institutions in the area for the purposes of promoting STEM careers and the college in general. The discipline works closely with Outreach to provide enriching education experiences. We will continue to use the VSL and telescope equipment to provide enrichment activities for the public.

As a combined result of the pandemic and the catastrophic consequences of AB 705 & AB 1705, the discipline has seen a dramatic decline in the mathematical abilities of incoming students. The discipline has been working with the Learning Center to provide tutoring and recommend workshops to meet those challenges. The discipline will be working with the AP&P committee to develop a non-credit course that reviews mathematical concepts that occur in both the lecture and the lab.

A major challenge the discipline faces was revealed in the equity program review data. The discipline has seen low success rates (66% this past year) for African American/Black groups, which sits almost ten points lower than the college average. The faculty will review instructional material and methods to ensure we are providing an equitable educational experience for all students. The data disaggregates online versus face-to-face instruction, so further research will need to be conducted to know how to approach online instruction differently, if applicable, versus face-to-face. Additionally, faculty professional development training on equity in education will be a valuable resource that we hope can help us close these gaps. The discipline has not seen a significant change in this data in the last three years, so further research will need to be conducted to see if this gap is seen across STEM and, if so, the discipline can collaborate with related STEM fields to close the gap.

Lastly, the discipline is in great need of additional faculty support. With the addition of a single adjunct faculty member, the discipline would be able to widen its course offerings.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The discipline would like to expand its use of the VSL for more K-12 groups and to start allowing public shows and science talks. Additionally, it is desired to offer more than just one introductory course. Perusing the course offerings from nearby community colleges shows that multiple introductory-style courses have been approved for general education requirements. One possibility would be to offer a digital imaging and data processing course that could fit under a technical education umbrella. This would allow a greater diversity of courses to be offered and satisfy the desire expressed by some students to continue learning material in astronomy after the completion of ASTR 101.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Astronomy is a non-CTE discipline and as such has no advisory committee.

California labor market data for the period of 2022 to 2032 related to astronomy (TOP code 1911.00) falls into two categories: Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary, and Natural Science Managers. For Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary, 2022 employment was at 2,000, with an estimated 1,690 annual job openings. For Natural Science Managers, 2022 employment was at 14,000 with an estimated 11,650 annual job openings.

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans** (CIPs) and progress toward meeting those plans.

<p>ASTR 101 & ASTR 101H, SLO 1 – Maintaining Satisfactory Performance. The goal for this academic year is to further develop instructional materials to support the SLO and, if needed, reevaluate the assessment tool to ensure it assesses student learning in a manner that matches how the course is taught.</p>	<p>Several changes to instruction and our assessment tool were implemented in the last few years because of analyzing SLO data. There was a greater emphasis placed on how scientific theories are supported by observational evidence. This change has appeared to improve how students evaluate scientific theories and how students understand the process of scientific inquiry. The goal for this academic year is to further develop instructional materials to support the SLO and, if needed, update the assessment tool to ensure it assesses student learning in a manner that matches how the course is taught.</p>
<p>ASTR 101 & ASTR 101H, SLO 2 – Maintaining Satisfactory Performance. For this upcoming year, there will be a greater focus on the conceptual understanding of mathematical concepts. This work was started a couple of years ago, and if students continue to maintain good performance, we can look to see how greater targets could be reached. The development of a zero-unit support course can assist in this endeavor.</p>	<p>For the past couple of years, the focus for maintaining satisfactory performance in this SLO has been to identify problems of a mathematical nature that students struggled with. Revisions were made to assignments and classroom instruction to break down the problem into finer steps to walk students through the methods for how to solve them. This appears to be successful, so we will continue to monitor student work in this area.</p>
<p>ASTR 101L – Maintaining Satisfactory Performance. The results for both SLOs have been good for the last couple of years. To maintain this satisfactory performance, it will be important to review current methodologies in instruction and lab procedures to ensure they are aligned with outcome goals. The development of a zero-unit support course can assist in this endeavor.</p>	<p>We have expanded the use of software for simulation purposes to help maintain performance in this area. We shall continue to explore more avenues to help students visualize celestial data. The acquisition of software, beyond what we currently own, to simulate astronomical behavior may be advantageous. In terms of physical equipment, it will likely be necessary to replace outdated or failing equipment to maintain the same level of student performance.</p>

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
#1 – VSL software	No progress has been made in this regard. The requirements to upgrade the software (Digistar 7) require an upgrade of equipment as well, due to how old the current software is (Digistar 5). This significantly increased the cost of the

	upgrade, and we could not procure the funds to do so. We will continue to seek funding for the upgrade.
#2 – Maintain and upgrade laboratory equipment	All software used for the lab has been able to be maintained and/or upgraded to the newest version. There has not been much progress regarding upgrading physical equipment. All equipment used currently is adequate, so it is not affecting the normal operation of the lab. Part of the reason for the delay in obtaining newer physical equipment was the release of the Common Course Numbering (CCN) template for ASTR 101L (now ASTR C1001L), which saw us have to incorporate a couple of new lab activities. So, the focus has temporarily shifted to creating those new activities.
#3 – Continue work on the creation of a laboratory manual	The current set of lab activities has been incorporated into a single document, which now acts as our working laboratory manual. However, work continues to be done for the reason stated above for part year's goal #2. A few months ago saw the release of the Common Course Numbering (CCN) template for ASTR 101L (now ASTR C1001L), which requires us to incorporate a couple of new lab activities.

Part 3: Based on Part 2 above, please list program/area goals:								
Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1 – VSL renewal	ILO 2. Creative, Critical, and Analytical Thinking		ASTR 101, ASTR 101H SLOs		Goal #6 Success: Boost success rates by prioritizing the student experience.	Upgrade the current planetarium software to Digistar 7 to increase the library of VSL content to improve the quality of education for students.	The discipline should procure new software for the Virtual Science Lab and renew licenses for current software. Additionally, custom software can be developed by both faculty and students.	VSL system upgraded to Digistar 7. Additionally, the purchase of content from publishers producing Digistar 7 content.
#2 – Acquisition of laboratory equipment	ILO 2. Creative, Critical, and Analytical Thinking		ASTR 101L SLOs		Goal #6 Success: Boost success rates by prioritizing the student experience.	Modernize current equipment and incorporate new equipment in lab activities to improve the quality of education for students.	New equipment will need to be acquired and introduced into current lab activities. Additionally, identify and purchase suitable replacement equipment for current lab activities.	The acquisition of newly purchased equipment and its successful integration into current lab activities. We should see an increase in the number of students achieving the targets for our SLOs in ASTR 101L.

#3 – Development of new laboratory exercises	ILO 1. Communication		ASTR 101L SLOs		Goal #6 Success: Boost success rates by prioritizing the student experience.	Finish the work on the creation of a laboratory manual by adding additional lab activities that were introduced by the CCN template for ASTR C1001L	Research new equipment and software related to the new lab activities. Write lab procedures and assessment materials into the current lab manual.	Fully developed lab activities will be made by Fall 2026 and included in ASTR C1001L for the 2026-2027 academic year.
#4 – Revise instructional material	ILO 2. Creative, Critical, and Analytical Thinking		ASTR 101, ASTR 101H SLOs		Goal #6 Success: Boost success rates by prioritizing the student experience.	Revise instruction material to address current trends in astronomy, close the equity gaps, and maintain satisfactory SLO performance.	Research current discoveries in astronomy and incorporate them into the current curriculum. Discussion with faculty within and outside the division to identify areas of revision to close equity gaps.	New instruction materials will be developed and implemented for online and face-to-face courses. Future institutional data should show progress in closing equity gaps.

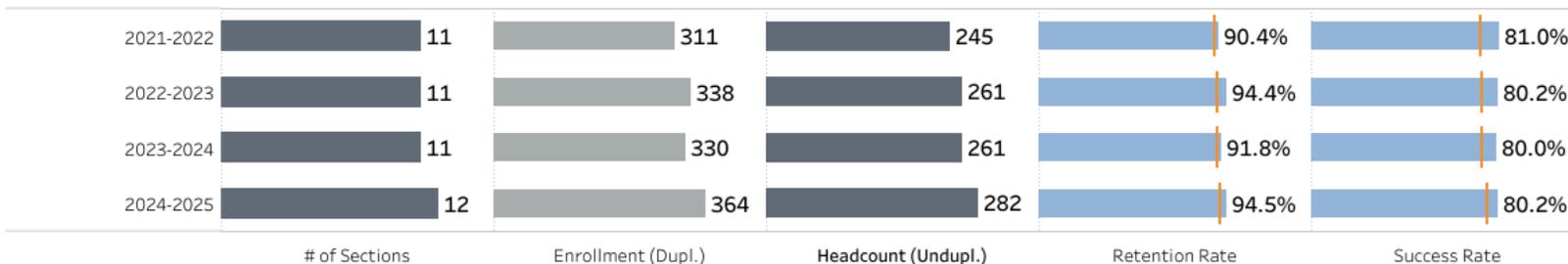
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)

Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Technology	Purchase new licenses for VSL software (Digistar 7) and equipment to support the new software	#1	Repeat	\$270,000	One-time	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)
Supplies	Purchase new lab equipment (i.e. telescopes, sky maps, sky simulation software, etc.) to replace currently aging equipment.	#2,3	Repeat	\$10,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)
Professional development	Registration and/or travel to attend astronomy related conferences for curriculum development and training for the VSL equipment.	#1,4	Repeat	\$5,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)

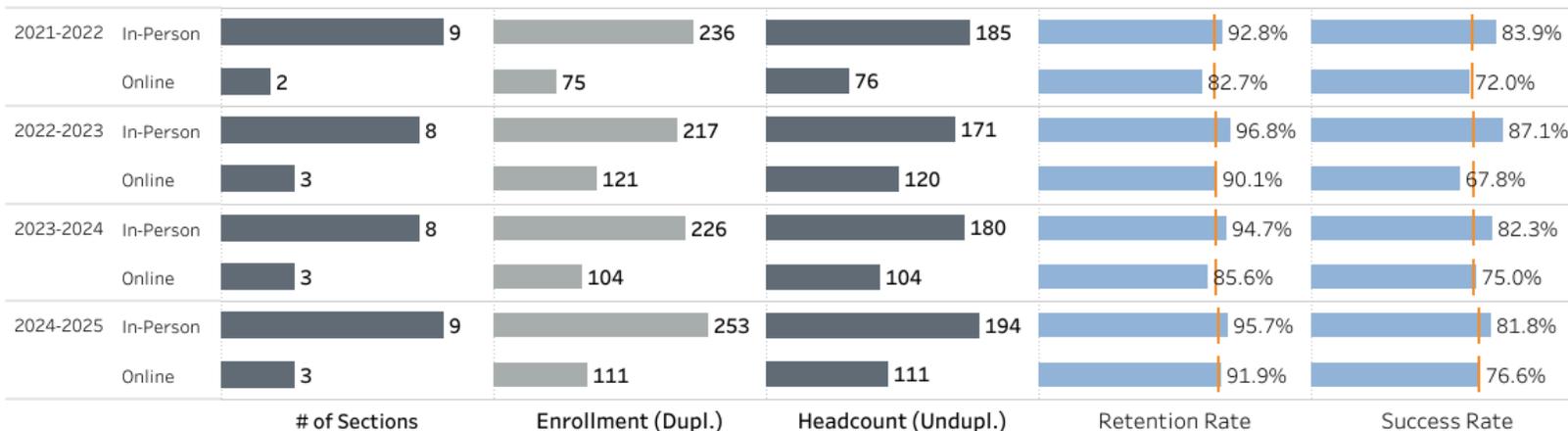
Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

- Required:
- Enrollment tab
 - Equity tab

ASTR: Enrollments, # of Sections, Retention and Success

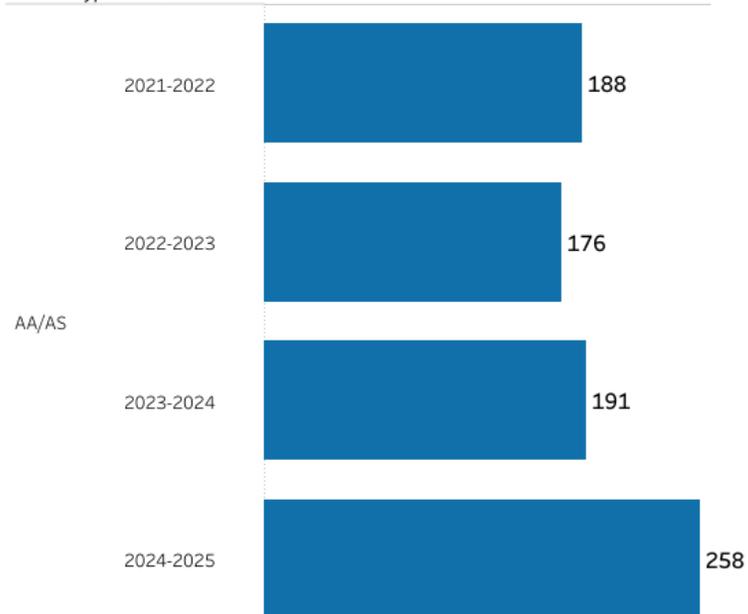


ASTR: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: LAS: Math and Sciences

Award Type Academic Year



Grade Distribution for ASTR



Classroom Teaching FTEF in ASTR

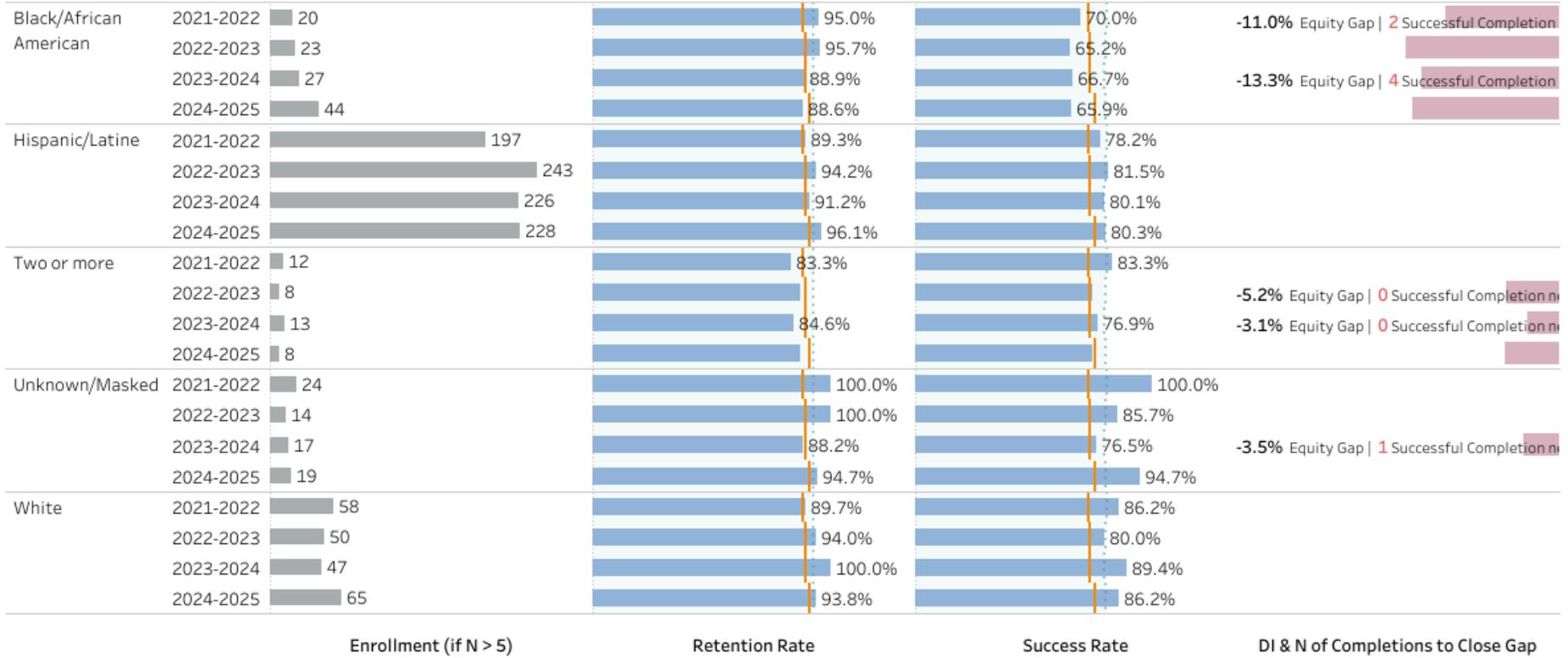
Fall Terms

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF		0.20			
Full-time FTEF	0.37	0.37	0.37	0.37	0.37
Overload FTEF	0.40	0.20	0.40	0.40	0.40
Grand Total	0.77	0.77	0.77	0.77	0.77
FTES	14.7	11.8	12.1	12.9	13.5
FTES/FTEF Ratio	19.2	15.4	15.8	16.8	17.6
WSCH/FTEF Ratio	576.8	462.1	474.3	504.0	526.7
WSCH	442.2	354.3	363.6	386.4	403.8

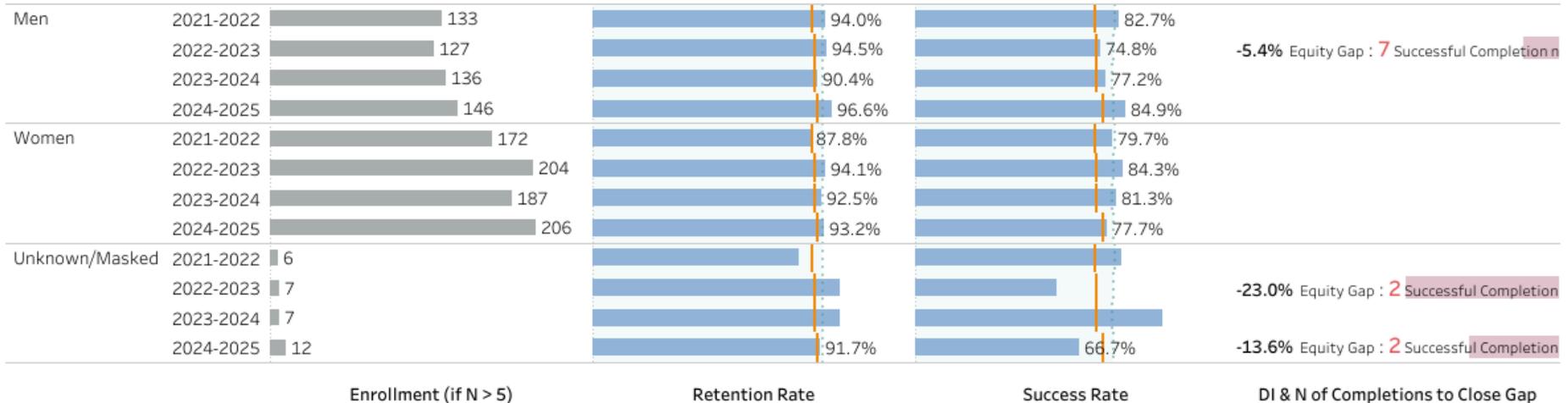
AVC Total Retention and Success are shown in vertical | **ASTR Success Rate is Green** |

When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender. To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

ASTR Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



ASTR Enrollment, Retention & Success for by Gender (if greater than 5)





Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Sciences & Engineering / Biological and Environmental Sciences (BIOL) For Planning Years: 2026-2027

Name of person leading this review: Osvaldo Larios Perez & Zia Nisani

Names of all participants in this review: Patricia Palavecino, Joseph Esdin, Kaitlin Bessinger, Joshua Shipp, Lauren Conroy, Lena Coleman

Part 1. Program Overview: Briefly describe how the program contributes to the district mission

The district’s mission is to provide a quality, comprehensive education to a diverse population of learners. This includes various transfer degrees and Transfer/General Education Courses. The biology program continues to meet these goals and increase course offerings to facilitate transfer courses for the A.S. and A.S-T in Biology. Currently, biology is the 6th largest major on campus and in the 2024-2025 cycle we had 39(AS-BIOLOGY), 34 (AS-T Biology) & 258 (AA- Liberal Arts in Math & Sciences) degrees granted. From Fall 2024, we had 550 declared majors combined (AST-Biology and AS Biology). This increased to 544 students in Fall 2025. From Fall 2024 to Fall 2025, our Human Biology and Wellness AS degree increased from 25 to 97 students. Many of our courses are program prerequisites for the Registered Nursing (RN) and other allied health programs. In 2024-2025, the biology program served 7,754 students while offering 201 distinct counts of CRNs, an increase of 16.9% from 2023-2024. Finally, the program is heavily involved in undergraduate research (UR) at AVC with now 9 biology faculty (16 faculty across disciplines) being active in mentoring students conducting UR. We have attended five different conferences, combining 140 students who have presented their work. This expansion of UR is giving our students, especially the ones from underrepresented and marginalized groups, opportunities not typically available at many community colleges, which is in concert with our institution’s mission.

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the Success & Retention and Program Award data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
• What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the Success & Retention data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
• Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the Strengths and Accomplishments section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

BIOL 100

- This course is an introductory course to anatomy and physiology. It is a course designed to be user friendly while introducing students to basic concepts in anatomy and in physiology. It makes these topics manageable. It is designed for students who are trying to pursue a health care career especially LVN students.
• To support student success and improve retention, several practices have been implemented to enhance student success, retention, fostering academic success, and engagement. This includes offering the course in both online and in-person formats. This flexible scheduling accommodates a wider range of students by allowing them to choose the mode of instruction that best fits their availability and learning preferences.

- Biology 101 lecture gives students broad immersion in key concepts of general biology, from microscopic cellular and molecular processes to macroscopic evolutionary trends. Of special note, it gives allied health students a strong foundation to help them succeed in anatomy, physiology, and microbiology.
- After the adoption of a majorly revised lab manual in Biology 101 Lab (starting in Spring 2023), it has been much easier to align Biology 101 lecture and lab topics, helping these concurrent courses operate more symbiotically.
- Students exceeded the SLO by 7%. Maintaining and improving this target can be met by providing adequate funding for fresh or consumable materials, or replacement of old or broken equipment. When the basic materials of a lab activity cannot be supplied, a less interactive "plan b" set up must be used, or in some instances skipped entirely. In a large course like bio 101 lab, communication among instructors and the coordinators also helps keep instructors informed of lab function, new lab updates, and announcements.
- Biology 101 lab has created a new lab manual which focuses on hands-on, student-led activities. These labs were written by AVC professors who understand the needs of our students and chose several activities to better help students learn difficult topics. The manual was also written by AVC professors in a manner that attempts to make difficult concepts understandable to introductory level students.
- Biology can be a stressful subject for many students. The biology 101 lab manual includes preparation material and practice questions that stress and reinforce the learning objectives of the lab. The activities include instructions that attempt to be easy-to-read and reduced in jargon terms

BIOL 103

- For many years, Introduction to Botany was linked to the Horticulture Program, which was discontinued about three or four years ago. Since then, through consistent effort and dedication, Botany has been reestablished as a valid and valuable course within the plant sciences, one that fulfills a General Education science requirement with a laboratory component or serves as an elective for interested students. While this may not seem like a major accomplishment, it represents an important and steady step toward creating a strong academic pathway in plant sciences. With continued support from the division and the institution, this course has the potential to attract more students who are genuinely interested in this field. The Counseling Office and its counselors can further contribute to this goal by recommending the course to students exploring options in the biological sciences.
- Several practices have been implemented to enhance student success, retention, and engagement in Introduction to Botany:
 - Comprehensive revision of laboratory activities: The lab component was fully reorganized to keep it align with the Course Outline of Record (COR) and is regularly updated to reflect current scientific knowledge and practices.
 - Development of an Honors Option: An Honors component was created for students seeking deeper exploration of botanical topics. The projects developed through this option have gone beyond academic requirements, resulting in educational materials on California native plants that can be used for teaching and community outreach.
 - Creation of a customized Laboratory Manual: A free, customized Botany Laboratory Manual was developed to reduce financial barriers and ensure equitable access to course materials for all students.
 - Incorporation of field experiences: Field trips are offered with some limitations to provide students with hands-on learning opportunities that connect classroom content to real-world plant diversity and ecological contexts. The use of our campus gardens assists with this objective as well.

- Introduction of blended/hybrid sections: A hybrid course format was developed to accommodate students with scheduling constraints, reducing on-campus time while maintaining the quality of instruction and laboratory engagement.
- These initiatives collectively aim to foster academic success, increase student motivation, and make the study of plant sciences more accessible and appealing.

BIOL 104

- Biology 104 has done well to meet the goals associated with SLOs, and this class continues to be a popular choice among biology classes, of interest to both those students who enjoy biology but also appealing to a broader population interested in environmental issues. In fact, it is the only general environmental course offered at Antelope Valley College, despite a general enthusiasm for environmental issues among students across the campus. One aspect of the class that has been successful for both in-person and online sections is a group research presentation, in which students work together in small groups to research an environmental topic and then present this topic to the rest of the class. Such an assignment not only helps students develop skills related to research and creating and presenting slides, but it also serves to facilitate cooperation and communication among students and generally promote a feeling of being part of an active, engaged course.
- By looking at student success at SLOs, instructors of Biology 104 are able to measure which topics students have the most difficulty in, adjusting their teaching style to better engage with students where they are, in terms of their understanding and depth of knowledge coming into the class

BIOL 110

- Prior to Fall 2023, we did not have a Bioinformatics lab exercise. Since then, we have implemented a Bioinformatics lab which introduces our students to essential skills in modern biomedical research.
- We do not have a required textbook for Biology 110 to reduce the financial burden that our students may face. We have implemented an electronic textbook with exercise questions as well as highlighted key concepts in our courses and have seen significant improvement in students' grades this academic semester. The e-textbook by MacMillian will be incorporated in our COR starting in Fall 2026.

BIOL 202

- Biology 202 is a course that teaches students about the physiology of the human body. It is a required course for nursing students and many allied health sciences students. It is a valuable course within the division, and it also fulfills the prerequisite requirements for many majors at four-year universities. This course represents an important and steady step toward creating a strong academic pathway in health sciences.
- Several practices have been implemented to enhance student success, retention, fostering academic success, and engagement. This includes:
 - Constant revision of laboratory experiments: We always edit the experiment protocol to make sure it is up to date and manageable to be done.
 - Development of an Honors Option: We have developed an Honor's option to ensure that students can enhance their transcript notation.

BIOL 204

- Despite losing a faculty member who teaches multiple sections of this class, enrollment for the class was high, with no classes canceled. No requests for equipment or new material have been made.

BIOL 304

- Continue to develop interesting ways to keep the students' attention and interest in this subject that can be intimidating to many outside the science or medical field.
- The online version of this course for the Bachelor's degree in Respiratory Care is in development for launch in the spring of 2026.

Overall

- Most of the labs in majors' (Biol 110 & 120) and non-majors' (Biol 101) courses are based on inquiry-based education. These practices help students connect science to the real world and encourages their curiosity and critical thinking skills. This is reflected in the SLO numbers for these courses. Bio 110 and Bio 120 are zero cost because of the adoption of OER textbook and internally created lab manual.
- An increasing number of faculty are actively engaged in scientific research and are mentoring students conducting undergraduate research. This research is either embedded in the curriculum or is done independently. This has resulted in students presenting at conferences and publishing papers in peer-reviewed journals.
- We have increased the number of course offering and we are spreading the time offerings of our courses to provide student options to fit their schedules. The number of sections offered has steadily increased since the decline due to the pandemic and we are currently offering 201 sections compared to 172 sections from 2023-2024.
- With the creation of a non-credit undergraduate certificate, we have expanded opportunities for all students to engage in UR and creative learning activities. This is more equitable as any student can enroll in this certificate and gain valuable experience in research rather than being enrolled in a specific course.
- Carefully using SLOs as a guide for method of evaluation: Every semester we look at the SLO results and implement into the curriculum any weaknesses we find.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Opportunities

- Historically the biology program has had a lower success rate than the set district goal. However, since the last three program review cycles, the success rate has increased from 65.0% in 2021-2022, to 71.5% in 2024-2025. This steady increase is promising as we hope to reach the set district goal in the coming review cycles. Our increased in success is attributed to the embedded tutors in our courses (lectures and lab) and the “boot-camps” offerings of basic skills (Reading and Math) throughout the semester. We plan on increasing the number of embedded tutors in labs and offering more “boot-camps” of basic skills (Reading and Math) during the semester. By continuing our innovative pedagogical methods, our students will be better prepared to tackle the rigors of biology courses. It must be noted that in the Hispanic/Latinx and Black/African American students there has been a steady increase in success rate. Since our program review cycle of 2021-2022, the success rate on these two groups has increased from 63.7% to 70.5% and from 53.6% to 61.0%, respectively. It must be noted that the program’s success rate is close to the overall campus success rate. Black/African American student success increased from 53.6% to 61.0%. Hispanic/Latinx student success rate increased from 63.7% to 70.5% which is 1% lower than the campus. White student success increased from 71.8% to 78.2%. The success rate has also increased across genders; males 70.6%, females 71.6%, and Unknown/Masked at 80.0%, an increase of 4-6% across genders. Even though success rate is slightly below campus, biology is known to be a rigorous and challenging topic but as shown by the data, there has been significantly and promising increases.
- Overall, the grades in biology have slightly improved in 2024-2025 when compared to 2023-2024 in parenthesis; A earned are at 27% (23%), B earned are at 26% (24%), C earned are at 18% (21%), and non-passing is at 16% (18%). Our data suggests that grade inflation is not an issue. However, the major area of concern is amongst ethnic groups:
 - Black/African American Students passing grade continues to be lower compared to other ethnic groups; A (18%), B (20%), C (20%) with 19% being W.
 - Hispanic/Latine A (22%), B (25%), (C) 21% with 13% being W.
 - White A (33%), B (29%), and C (15%) with 11% being W.

This number is the lowest amongst all the other races/ethnicities. Hispanic/Latinx students had the second lowest percentage (about 68%) in these grade

categories. Finally, the grade distribution between the biological genders was not statistically significant.

- AS in Human Biology and Wellness has been approved and we project that FTES will increase as data shows an increase of 13.3% in Fall 2025 compared to 3.5% in Fall 2024. This degree is designed specifically for allied health majors who are preparing to apply for the nursing, radiologic technology, and respiratory therapy programs to allow those students to earn a degree in the process of preparing for these programs.
- We have created an Anatomy and Physiology combo sequence, and these courses are slated to be taught at the Palmdale center in an 8-week format. This two-semester sequence will be equivalent to taking both Biology 201 and 202. This will increase the opportunity for future allied health majors to complete their program prerequisite requirements. We are working on offering Microbiology at the Palmdale center in an 8-week format as well.

Challenges

BIOL 100

- Office Hours: We increased our available office hours and options for students to meet in person, on Zoom, or by appointment outside the scheduled office hours.
- Review Sessions: Before every exam we schedule a review session to discuss complicated concepts to ensure students succeed academically. Embedded Tutors: We have communicated with the Learning Center and assign an embedded tutor to every section we teach. Library Book availability: it would be helpful for the library to carry copies of the lab manual. This would allow students to begin engaging with course material while waiting to receive their textbooks.
- To help close equity gaps, it is important to think about accessibility. With online course offerings, students must have access to reliable digital devices and a reliable internet connection. These technology barriers faced by students could affect their academic performance. While on-campus computer labs are available, expanding the Chromebook loaner program would provide more students with access to essential devices.

BIOL 101

- Biology 101 is a high-demand course and major source of FTES for the college. To better support our students, we would always benefit from hiring additional full-time faculty members.
- For decades, this course has listed an expensive textbook as a required material. The price is prohibitive for most students, and the majority do not purchase the textbook. Several faculty are planning to pilot a learning management platform called McGraw Hill Connect, which would provide students with access to a smart electronic text and studying resources at a greatly reduced price.
- We came close to meeting our two SLOs but did not actually exceed the 70% threshold.
 - For SLO 1 ("Define life and describe the basic unit of life, the cell. Correlate cellular organelles with their functions; understand biological processes that maintain life."), our actual performance was 64.3%.
 - For SLO 2 ("Evaluate the principles of evolution and organize living things in taxonomic groups to study the diversity of life. Recognize the relationships among organisms."), our actual performance was 68.6%.
- To improve student performance, we can evaluate how these SLOs are being assessed and perhaps try to standardize assessment methods across the many faculty who teach this course.

- One of the biggest challenges to the lab is getting adequate funding to replace consumable materials each semester, or replacements to maintain damaged equipment. The labs run most effectively when there are enough materials for all students. When fresh materials have to be replaced with a photo, it reduces the level of hands-on interactivity of our activities.
- When students feel successful in a subject they gain confidence. This can be a challenge for students from backgrounds that may have a stigma of not doing well in the sciences. This can make students feel removed from the subject of science. Our goal was to create learning material and activities that are accessible and easy to understand with the hope that all students leave feeling they had a positive learning experience.
- The one SLO for bio 101 lab was exceeded with having a 77.08% performance from our 70.00% achievement target.

BIOL 103

- To further support student success, it would be beneficial to continue using the classroom in the Horticultural Building for Botany and other plant-related classes, as this location provides direct access to the adjacent garden, which can serve as an invaluable outdoor learning space. Additionally, redesigning the classroom as a laboratory-style environment with proper student workstations, storage cabinets, and adequate space for microscopes and other optical devices such as TV screen to project microscopic plant material that will greatly enhance the quality of instruction and hands-on learning. I am aware of the possible financial limitations to achieve that goal.
- One action would be to establish Botany tutoring support within the Learning Center. In previous semesters, I have recommended high-achieving former Botany students to apply for tutoring positions, but these efforts have not yet been successful. Providing dedicated Botany tutors would help students who may need additional guidance with course material and laboratory concepts, promoting equitable access to academic support and improving overall retention.

BIOL 104

- Although successful as an online course, Biology 104, like all online courses, suffers from problems associated with plagiarism and AI-misuse in online exams and online assignments. The class would be more successful with greater support and guidance from the college in general towards instructors of online courses, giving them the tools and support they need to carefully investigate AI-based plagiarism and follow standardized and fair practices for student disciplinary responses. Another effective strategy would be to shift all fully online sections of Biology 104 to mostly online, but requiring test-taking in person, to reduce the possibility of cheating or plagiarism on exams.
- Helping to support instructors to look out for and discipline students based on AI- based plagiarism would work towards closing equity gaps, since some subgroups of students are more likely to be knowledgeable about AI use (and could afford more sophisticated AI tools) compared to other groups of students. Making sure that all students have to create their own work themselves would lessen advantages associated with students who are proficient at using AI, or other tools, to do their work for them. There are also many students who may be coming into classes not speaking English as a first language, such students would benefit from instructors adjusting their teaching to not use a ton of jargon unless required to fully explain a topic in question.

BIOL 110

- In our SLO performance with expected performance of 75% for each SLO
 - SLO #1 achieved a 66.09%, a decrease of 14.34% when compared to our 80.43% obtained in 2023-2024. With the implementation of an additional exam in our courses, it may have affected our SLO #1 performance. We plan to look at how we are accessing SLO #1 in our additional exam to best reflect students' understanding of cells and how they interact to allow the state of being alive.
 - SLO #2 achieved a 47.22%, an increase of 7.88% when compared to our 39.34% obtained in 2023-2024. Should be noted that SLO #2 has always been our lowest of our 3 SLOs , however, we are seeing slight increase of performance as we are assessing SLO #2 through modern lab experiments utilizing ge

our modern equipment being used in our Transformation of Chemically Competent *E. coli* lab exercise, the separation of plant components, bacteria components, and proteins using a clinical centrifuge, and the analysis of DNA through agarose gel electrophoresis.

- SLO #3 achieved a 71.96%, a decrease of 2.64% when compared to our 74.60% obtained in 2023-2024. From last year's assessment, we introduced an additional lab report to assess SLO #3. We will continue to follow such assessment while improving our targeted performance in order to have students present their experimental findings in a coherent and constructive discussion/conclusion.
- Our students have informed us on how it is not feasible on finding Biology 110 tutor at the Learning Center. Additionally, few students have been facing homelessness or “couch-surfing”. The need to have affordable housing for students facing financial hardships continues to plague our college.
- Our current textbook is priced at \$200 (new print) or \$150 (used print). In Fall 2026, we will be adopting an electronic textbook from Macmillan Learning priced at \$80 as it has been accepted through AP&P.
- We continue to encourage students to sign up to be tutors for the subject to better support future students.

BIOL 202

- We provide our students with lots of support:
 - Office Hours: We increased our available office hours and options for students to meet in person, on Zoom, or by appointment outside the scheduled office hours.
 - Review Sessions: Before very exam we schedule a review session to discuss complicated concepts to ensure students succeed academically.
 - Embedded Tutors: We have communicated with the Learning Center and assign an embedded tutor to every section we teach.
- One action would be to establish more tutoring support within the Learning Center. Providing dedicated physiology tutors would help students who may need additional guidance with course material and laboratory concepts, promoting equitable access to academic support and improving overall retention.
- We can also increase office hours and modes of availability to our students.
- We also record the lectures and make them available to students.

Overall

With two faculty members retiring in 2025-2026 academic year, we are desperately needing faculty to fill in the void that has been created. Areas of Microbiology and Anatomy were impacted this semester, as we shifted one Anatomy professor to cover the open sections of our retired Microbiology professor (Fall of 2025). Our FTES has been steadily increasing from 320.3 (Fall 2022) to 344.6 (Fall 2024) and we are concerned that if we do not fill any vacant faculty spots, we could potentially lose any momentum gained.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

BIOL 100

- All 8 SLOs were met/exceeded the expected performance of 70%. Our success should be attributed to the faculty teaching the courses and their dedication to student success. To sustain our current exceeded performances, we should continue to have faculty experience teaching and a profound knowledge of Human Anatomy and Physiology.

- The desire of this course is to be inspiring for students considering a career in healthcare. This course should inspire them to continue that path with an appreciation of the depth and complexity of human biology.
- The desired future is to have stronger more educated students to be ready for the rigors of nursing. We also would like to expand our course section offerings so that more students can enroll and provide adequate technological support to ensure equitable participation.

BIOL 101

- The goal of the lab is to provide a hands-on, interactive experience for our students, although this was mentioned in the first section, adequate funding is key to running this large lab course. The labs were written in a way that minimized the need for many complicated materials, yet every so often, living cultures, fresh materials cannot be provided.
- We want to be known for providing both allied health and non-allied health majors with a thorough, engaging and appropriately rigorous general biology curriculum.
- We want to make Biology 101 lecture accessible and comprehensible to all students regardless of socioeconomic background, a goal which may be furthered by universal implementation of McGraw Hill Connect or eventual adoption of an open educational resource text.
- Biology 101 lab is an approachable course. If effort is put in, students will leave with useful, sometimes real-world knowledge. We hope students leave feeling that biology is a subject in which they can be successful.
- We continue to update and make changes to the lab. We hope to continue improving the course through refining instruction and activities in a way that is most impactful for our students. We hope procedures concerning lab funding could change in a way that meets the needs of the lab.

BIOL 103

- Students exceeded the achievement targets for both SLOs during the 2024–2025 academic year. This high performance is primarily driven by the face-to-face sections, which have consistently shown higher retention rates and better academic outcomes than the blended or hybrid sections. Additionally, the use of customized lab material may have alleviated some financial barriers or delays that students previously faced in obtaining costly commercial lab manuals. During spring 2025, an increasing number of students began using tablets to work digitally with the available lab PDF files during class sessions—a trend that supported accessibility.
- Although performance has exceeded the achievement target for the current period, a significant decline might be observed during the 2025–2026 academic year, pending the next data analysis. Contributing factors include the loss of access to the Horticultural Garden—an important learning resource that supports various plant-related topics and laboratory activities—and the offering of a sole blended/hybrid section in fall 2025, which experienced student withdrawals due to the misconception that the course was fully online.
- The goal is for Introduction to Botany to be recognized as an engaging and meaningful entry point into the field of plant sciences, one that fosters curiosity, hands-on learning, and community engagement. The program aspires to connect students with their environment, nurture appreciation for California’s rich native flora, and encourage active participation in conservation and sustainability efforts.
- The desired future is to cultivate stronger and broader student interest in Botany, leading to an increased number of course sections and enrollment. In the long term, the program aims to expand into noncredit offerings and potentially develop a certificate pathway in plant sciences. Achieving this vision will require time, additional faculty, and continued institutional and administrative support.

BIOL 104

- We have exceeded the two SLO targets for our classes, averaging 76.8% for the first target and 80.72% for the second target, both compared to a goal of 70%. Both of these goals are phrased in a way that is fairly open and not overly narrow, one considering solving environmental problems and the other dealing with energy flow within ecosystems. This is a huge advantage, because it means that instructors can teach at their strengths and emphasize what they think is important to emphasize, while most certainly touching on the two areas of environmental solutions and energy and ecosystems. What is already being done seems to be working pretty well, however, perhaps this course could benefit from increased communication between professors about what works and what doesn't. What is especially true for online sections of this class, there seems to remain a difficulty in regard to evaluating students in a way that is robust against student misuse of AI, which may be a significant issue across all online classes. It may be advantageous to have more communication among instructors to find ways to fairly evaluate students without unintentionally rewarding such misuse.
- Student performance has exceeded the goals for both SLOs in this course, however it may be useful to be mindful of what steps are important to maintain high performance that has been observed. Biology 104 is, by its nature, a sort of integration of two related but usually somewhat distinct fields, environmental sciences and biology. Since it is fundamentally fairly broad, potentially covering a huge diversity of environmental problems and solutions, this works in favor of professors who may have more experience in biology or environmental sciences and who may prefer to focus on particular environmental problems and solutions over others. I think enforcing this sort of flexibility, letting teachers teach to their strengths, would be a good strategy to follow going forward. When instructors are engaged and passionate and speaking about what they really know well, it increases student attention and retention of concepts.
- One significant challenge, especially for online instructors, is how to handle student misuse of AI in writing answers to assignments and using AI to amplify their scores in online exams. Although the college has offered some strategies with regards to dealing with AI misuse, there does not seem to be a specific AI policy for the college that faculty can easily follow in their own courses, one that would shield them from students who may feel that a particular instructor is more harsh in restricting AI use than other instructors. It would help to have more guidance from the college, and perhaps increase communication among online instructors, where they can share effective strategies without feeling pressure, for example, to follow no disciplinary actions when suspecting student AI misuse. This is not a specific concern for this class, but rather a general concern for all online instruction. Coming up with assignments and exams and quizzes and projects for an online course robust against student AI misuse is difficult, and this challenge, and fears of pushback from being too strict, may act as a barrier against some instructors feeling comfortable agreeing to teach fully online courses.
- Biology 104 is the only general environmental class offered at AVC covering diverse topics like fossil fuels and alternative energy, pollution, unsustainable agricultural practices, water scarcity, ecological relationships between species, and overpopulation. Many students, after taking this course, feel very motivated to learn more and engage more with environmental issues, and many of them feel like the class was important for them to take, beyond the practical impacts of getting a grade in a particular class. Instructors would hope that Biology 104 would serve as a good introduction to many environmental topics and would help students to broaden their understanding enough so that they could comprehend and follow environmental news and policies in the real world, as a result of taking this class.
- Biology 104 has been a successful and flexible course, covering topics related to the environmental sciences as well as biology. However, it is a lot of weight to carry by one course alone; it would be recommended to expand the environmental courses available at AVC so that some topics covered in Biology 104 could be covered in greater depth. For example, having courses on Pollution and Climate Change, Introduction to Ecology, or Conservation Biology would be both popular among students as well as allow instructors to more thoroughly explain such topics outside of a course

BIOL 110

- Biol 110 has implemented inquiry-based lab exercises using more modern-day laboratory equipment such as the VWR Flexible 24 Clinical Centrifuge, and Genesys 30 Spectrophotometer. Furthermore, since last year's introduction to CURE (Course Based Undergraduate Research), students' research interest has

been growing for the study of mutated yeast and comparing their cell division rates to the wild-type *Schizosaccharomyces pombe*. Due to students' involvement with CURE, we added brand new micropipettes (P1000, P100, P20, and P5) for which all students are assigned their own. With the new spectrophotometers, we began analyzing several plants' pigments instead of just one plant for our photosynthetic pigments lab as well as our Anthocyanidin pH lab exercise where we exposed Anthocyanidin to serial diluted pH ranging from acidic to basic concentrations and record the effects of absorbance due to pH changes.

- Bio 110 would like to be known for training students well for their chosen careers in STEM. We hope our students acquire critical thinking skills in our courses so that students can thrive in the AI era. The desired future for our students is one with opportunities to do internships in biotech companies so that they see how molecular and cellular biology operates in the real world.

BIOL 120

- SLO1 & SLO2: Both Student Learning Outcomes (SLOs) 1 and 2 successfully met their overall targets, reflecting strong instructional practices and student engagement. The exceptional performance in SLO1 can be attributed to the implementation of an inquiry-based, "tree-thinking" approach to teaching evolutionary biology. Phylogenetic trees serve as a foundational tool for illustrating evolutionary relationships, and "tree-thinking" describes the ability to conceptualize and interpret these relationships effectively. Throughout the semester, students not only learn to read and construct phylogenetic trees but also apply these skills in both lecture and lab settings—particularly when exploring Fungi, Plants, and Animals. This hands-on application allows students to connect theoretical knowledge to real-world biological questions, such as investigating how different species are related. SLO2 emphasizes the development of scientific thinking and the application of the scientific method. All BIOL 120 courses incorporate a research component that provides students with a hands-on, inquiry-based learning experience. Many sections employ Course-based Undergraduate Research Experiences (CUREs), offering students the opportunity to engage in open-ended projects that closely mirror authentic academic research. These experiences not only enhance learning outcomes but also provide students with confidence and skills to present their work at undergraduate scientific conferences. Given the continued success and upward trend in student achievement for both SLOs, it may be appropriate to consider increasing the performance benchmark to 75% in future assessments.

BIOL 201

- We have exceeded our SLO achievement target. To continue our success, we will continue with our faculty collaboration and our constant support to our students.
- Our Human Anatomy courses utilize cadavers and other animal specimens that allow students to visualize and develop a stronger understanding of the course content. We have purchased new models and cadavers throughout the 2024/2025 school year to help improve student learning. However, our program would benefit from the purchase of 2 additional cadavers (so 24 students are not required to share a single cadaver), new supplementary models (including new cranial bone models, ear models, blood vessel models/diagrams, and brain models), and updates to the iPads to include new/updated histology software and Visible Body Software. Including more materials at the learning center and library would help close equity gaps since students would have access to quality study materials outside of class. This will increase our student success rate and prepare students for allied health sciences programs.

BIOL 202

- We have exceeded our SLO achievement target. To continue our success, we will continue with our faculty collaboration and our constant support to our students.
- The goal is to be recognized as an engaging and meaningful entry point into the field of nursing while still upholding that highest of academic standards as well as enabling our students to foster curiosity, hands-on learning, and community engagement.

- The desired future is to have stronger more educated students to be ready for the rigors of nursing. We would also like to expand our course section offerings so that more students can enroll.

BIOL 204

- Both SLOs were met/exceeded the expected performance of 70%. SLO #1 80.55% and SLO #2: 81.02%. The success of our SLOs would be sustained and supported through our colleagues' support and attention to our students' understanding and performance.
- A detailed instructional PowerPoint on the use and care of the microscope was made available to all BIOL 204 faculty as well as others. This will help all instructors standardize the competence of our students using this instrument. No requests for equipment or new material have been made.

BIOL 304

- All three SLOs were met/exceeded the expected performance of 70%. SLO #1 93.75%, SLO #2: 87.50%, SLO #3 87.50%. We hope to hire a biologist with both professional and academic experience in microbiology, as our Bio 304 instructor has retired and someone will be needed to teach this course in future semesters.

Overall

We are continuing to provide hands-on, inquiry-based labs and activities to further develop students' scientific skills. For example, in both major's introductory biology courses (Biol 110 and 120), students have been introduced to CURE (Course-Based Undergraduate Research Experience) and other research-based activities. Both courses have state of the art and research quality equipment and tools. This allows us to give our students the opportunities to develop their lab and critical thinking skills. In addition to our major's biology courses, our General Biology (101 Lab), contains inquiry-based activities to further enhanced student participation, content comprehension, and course success. It should be noted that our Bio 101 lab manual was created by several BES faculty across various disciplines including Anatomy, Microbiology, Cell and Molecular Biology, Botany, and Organismal/Environmental biology. Since General Biology (Biol 101) is the feeder course of many courses in the allied health fields, it is important for the students to have a greater understanding of the material presented in Biol 101. We are continuing to strive for the develop of further CURE courses and summer research projects for our students in all our biological sciences courses as we are introducing Bio 990 Research Practicum, a Credit/Non-Credit course. Bio 990 comprises of a class research project, writing a research proposal, conducting preliminary experiments and write and present their research project (oral or poster). It has become a major priority of the department, as we believe that undergraduate research strengthens written and oral communication, critical thinking, technical skills, and information literacy. To take steps in developing and encouraging more UR in biology, we have a noncredit certificate along with two other noncredit biology research related courses that are working their way through the AP&P process and will be in the calendar in the Fall of 2026.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans** (CIPs) and progress toward meeting those plans.

<p>Biol 120: Increase emphasis on evolutionary thinking and scientific process</p>	<p>We are using more case studies in our class along with special emphasis on constructing and reading phylogenetic trees. This has immensely improved students' understanding and application of evolutionary principles. Furthermore, students engage in developing and executing a research project that is open-ended. This greatly enhances their appreciation and understanding of scientific methods.</p>

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
<p>Goal #1: Reform instructional methodology to include Inquiry-based learning.</p>	<p>Many of our biology courses, such as BIOL 10L, 103, 110, 120, and 204 have incorporated inquiry-based activities, including case studies and research projects, designed to enhance students' understanding of the subject matter and strengthen their scientific methodology skills.</p>
<p>Goal #2: Improvement of student learning outcomes.</p>	<p>As noted in Part 2A, the overall success rate increased by 8% in 2024–2025, reaching 61%, with gains observed across all ethnic groups. However, there remains a need to implement strategies to further improve success rates among Black/African American and Hispanic/Latinx students.</p>
<p>Goal #3 Develop an undergraduate research (UR) program.</p>	<p>Thanks to the Title V (Data Science) grant, we have significantly expanded faculty and student participation in undergraduate research (UR). In 2023, a total of 23 students, mentored by four faculty members, presented at two conferences. On November 23, 2024, we brought 33 students, mentored by seven faculty members, to the Southern California Conferences for Undergraduate Research. This November we will be taking 39 students to present their work. The number of faculty dedicated to UR research has steadily been increasing, especially in biology, where we went from 3 faculty to 9 faculty doing UR. Finally, we have a UR website and SharePoint with resources for students and faculty to increase participation in UR. It must be noted that if we count the Course-based Undergraduate research courses in</p>

	biology (Biol 110 & 120), there are between 148-168 students doing UR in their classes.

Part 3: Based on Part 2 above, please list program/area goals:								
Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1 Reform Instructional methods to include Inquiry-based learning	ILO 2. Creative, Critical, and Analytical Thinking	Biol PLOs 1 & 5	Biol 110 & 120 SLOs 1 & 2	N/A	Goal #6 Success: Boost success rates by prioritizing the student experience.	Increase the number of inquiry-based learning courses to engage students with the subject matter and enhance their learning.	Having faculty workshops and round table discussions on developing hands-on lab activities and other high impact practices. Attending conferences that deal with latest pedagogical developments in biological sciences.	(1) Conduct student surveys in labs that have inquiry-based activities. There are proven instruments out there that can be utilized. (2) For courses that have built-in UR, we will use URSSA (<u>U</u> ndergraduate <u>R</u> esearch <u>S</u> tudent <u>S</u> elf- <u>A</u> ssessment). URSSA is an online survey instrument for use in evaluating student outcomes of undergraduate research experiences in the sciences.
#2 Increase enrollment	ILO 2. Creative, Critical, and Analytical Thinking	N/A	N/A	N/A	Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	To have courses offered during the morning, afternoon, and night, while developing pathways to accommodate different students. There will be two pathways, one for part-time students, and another for fulltime students.	1) Increase course offering across different modalities (when permitted) and times. (2) Develop pathways for both traditional and non-traditional students. For example, a pathway for full-time students and pathway for part-time student.	Doing a semester-by-semester comparison of different courses offered in the program and support programs such as chemistry and Physics. Developing a map showing course offerings to minimize conflicts. The new Human Biology & Wellness degree will benefit all the pre-allied health students (Nursing, etc.) and will help boost our numbers since these students

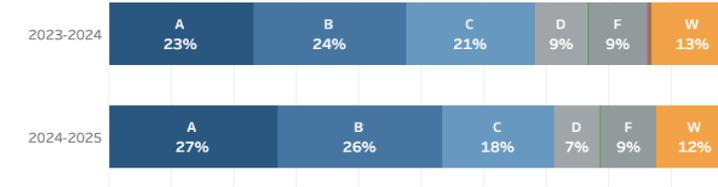
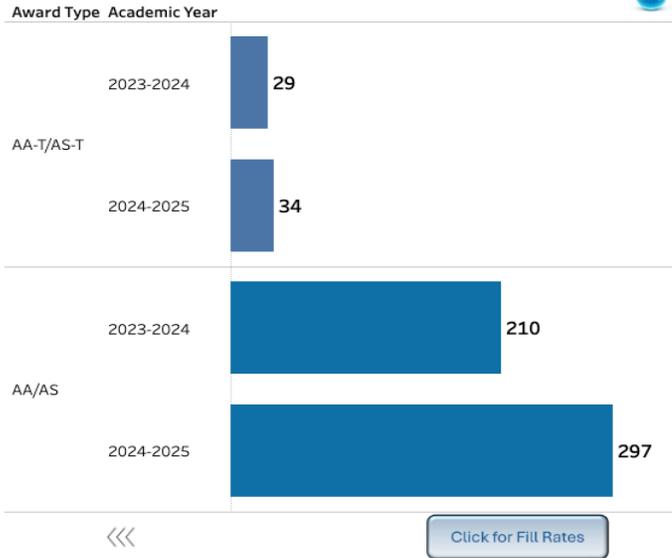
								were not captured in the past.
#3 Enhance and grow undergraduate research (UR) in Biology.	ILO 2. Creative, Critical, and Analytical Thinking	BIOL PLOs 1 & 5	Biol 120 SLO 2 Biol 110 SLOs 2&3		Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Increasing biology faculty participation in mentoring student research, with emphasis on creating more CUREs.	(1) Conduct workshops (through FPD) to train and inform faculty on how to develop and conduct UR. (2) Develop a Summer UR Fellowship (SURE) where we pair students with faculty to conduct research projects during summer. This program will be specific for students that are from marginalized and/or underrepresented groups. (3) Having a non-credit certificate in undergraduate research (set to start in Fall 2026)	Tracking the number of faculty and students engaged in UR. Also, using URSSA to measure students' gains. Tracking the number of students getting the non-credit undergrad Research certificate.

Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)

Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Faculty	We are requesting additional full-time faculty to replace our retiring professors (2 Microbiology) and to alleviate the overload to our Anatomy and Physiology faculty. Hiring at least 2 full-time faculty will not just alleviate the thinning of our instructors but will permit us to open new sections and expand at the Palmdale Center, which is already in motion for Anatomy/Physiology.	Goal #2	New	\$240,000	Recurring	Dr. Lobos & Osvaldo Larios
Supplies	Further supplies are needed as research experiments are leading to publications, poster and oral presentations at conferences, and CURE courses are being implemented. Equipment will be needed for certain experiments to proceed to next phases of research. Furthermore, expansion of course offerings in both campuses (Lancaster and Palmdale) and that would require additional supplies.	Goals #2 and #3	Repeat	\$70,000	Recurring	Dr. Nisani & Osvaldo Larios
Professional development	Our student led research would lead to conference attendance to not just present our findings but also strengthen and develop new ideas and pedagogical practices for our faculty implementation in our courses and in our research practices.	Goals #2 and #3	New	\$15,000	Recurring	Dr. Nisani

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

- Required:
- Enrollment tab
 - Equity tab



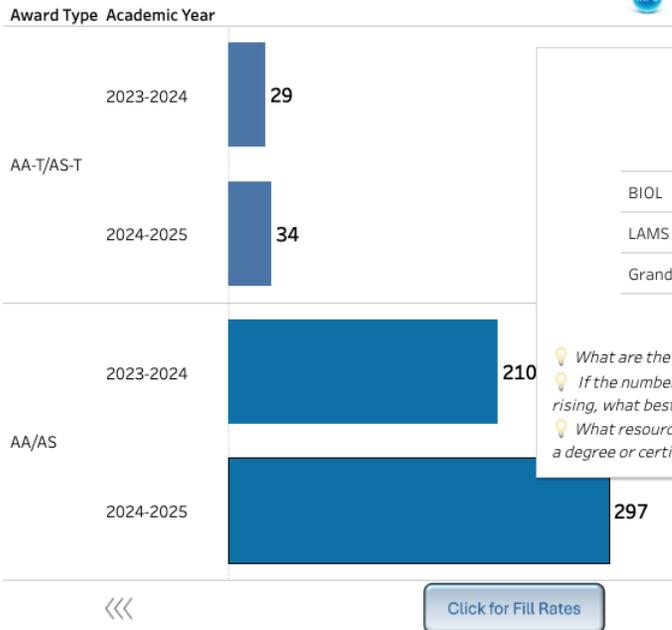
Classroom Teaching FTEF in BIOL

Fall Terms

	Fall 2023	Fall 2024
Part-time FTEF	5.23	5.83
Full-time FTEF	13.80	15.07
Overload FTEF	2.93	4.47
Grand Total	21.97	25.37

	340	298	317	316	341
FTES	340	298	317	316	341
FTES/FTEF Ratio	15	13	16	14	13
WSCH/FTEF Ratio	452	396	468	431	404
WSCH	10,214	8,928	9,520	9,474	10,245

Click for FTES



Academic Year: 2024-2025
 Award Type: AA/AS
 Degree Desc: AA/AS
 # of Awards Received:

BIOL	Biological Sciences	39 AA/AS AVG Unit Earned: 86
LAMS	LAS: Math and Sciences	258 AA/AS AVG Unit Earned: 85
Grand Total		297 All AVG Unit Earned: 85

Some questions to consider while looking at Program Awards data:

- What are the trends in the number of awards granted? Are the numbers going up or down, and why?
- If the number of awards is declining, what strategies could be implemented to increase them? If the number is rising, what best practices have been implemented to achieve this growth, and can they be scaled up college-wide?
- What resources and strategies could help students progress through the course sequence more efficiently to earn a degree or certificate?

	340	298	317	316	341
FTES	340	298	317	316	341
FTES/FTEF Ratio	15	13	16	14	13
WSCH/FTEF Ratio	452	396	468	431	404
WSCH	10,214	8,928	9,520	9,474	10,245

Click for FTES

BIOL: Enrollments, # of Sections, Retention and Success

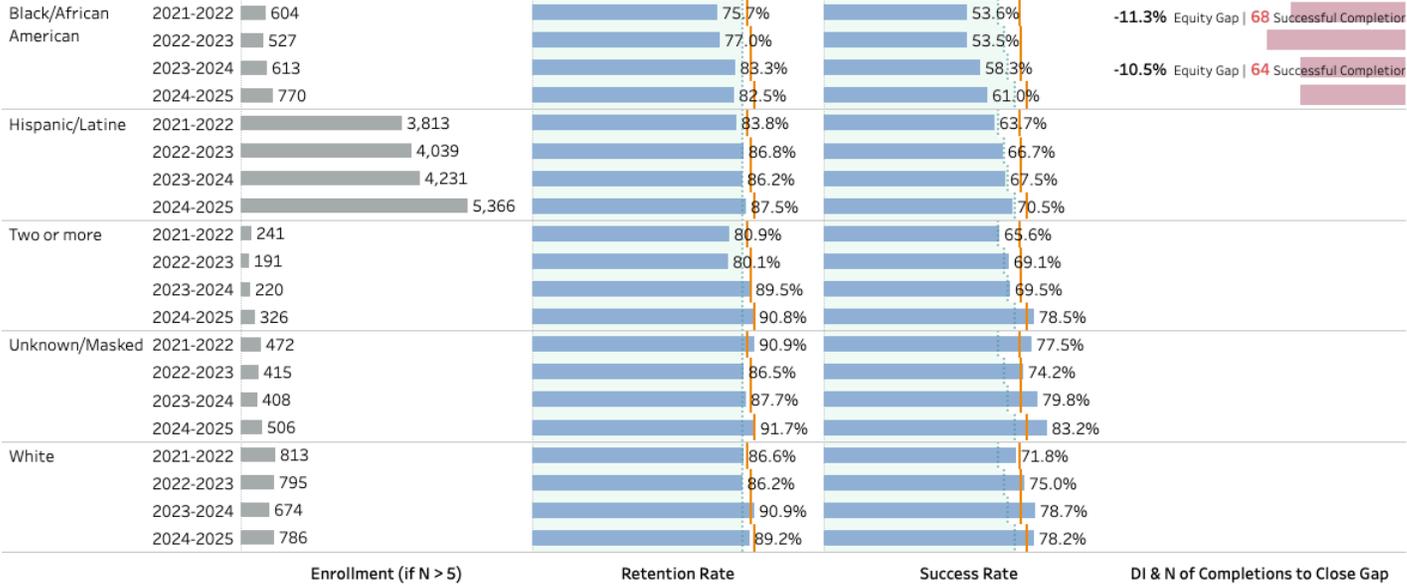
Year	# of Sections	Enrollment (Dupl.)	Headcount (Undupl.)	Retention Rate	Success Rate
2021-2022	183	5,943	2,666	83.8%	65.0%
2022-2023	172	5,967	2,791	85.6%	67.3%
2023-2024	172	6,146	2,809	86.7%	68.7%
2024-2025	201	7,754	3,166	87.6%	71.5%

BIOL: Enrollments, Number of Sections, Retention and Success by **Modality**

Year	Modality	# of Sections	Enrollment (Dupl.)	Headcount (Undupl.)	Retention Rate	Success Rate
2021-2022	In-Person	153	4,981	2,227	82.8%	62.8%
	Online	30	962	733	89.2%	76.0%
2022-2023	In-Person	141	4,881	2,170	84.2%	64.1%
	Online	31	1,086	906	91.8%	81.2%
2023-2024	In-Person	140	5,022	2,211	85.3%	65.6%
	Online	32	1,124	907	92.8%	82.5%
2024-2025	In-Person	162	5,911	2,446	86.0%	69.0%
	Online	39	1,843	1,063	92.8%	79.7%

AVC Total Retention and Success are shown in vertical | **BIOL Success Rate is Green** |
 When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

BIOL Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



BIOL Enrollment, Retention & Success for by Gender (if greater than 5)



FTES by Attendance Methods | **FTES by Subject / Term** | Annual FTES | Division

Total FTES by Subject and Term

This dashboard uses end of term data extracted from Argos in spring 2025

Hover over the Bars to view by Course

	Fall			Spring				Summer			Winter
	2022	2023	2024	2022	2023	2024	2025	2022	2023	2024	2025
	3,909.0	4,189.1	4,424.4	3,304.8	3,647.4	3,996.8	4,200.8	980.1	1,152.2	1,329.8	431.2

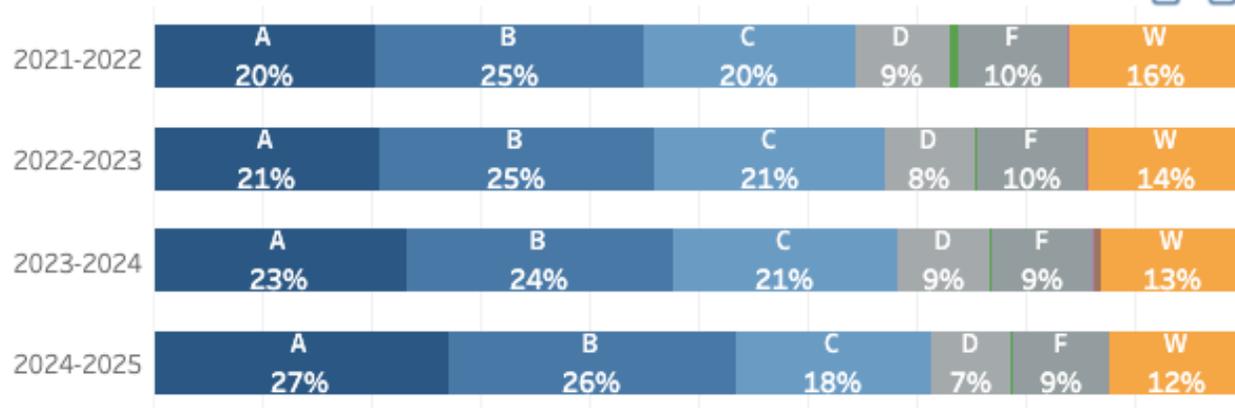
	Fall				Spring					Summer				Winter						
	2019	2020	2021	2022	2020	2021	2022	2023	2024	2025	2019	2020	2021	2022	2023	2024	2020	2025		
BIOL	344.3 / 95.6	340.5 / 97.3	297.6 / 97.3	317.3 / 99.1	315.8 / 99.4	341.8 / 99.1	354.0 / 95.6	305.8 / 98.5	278.5 / 98.8	302.6 / 100.0	304.0 / 100.0	322.6 / 100.0	38.2 / 100.0	90.0 / 100.0	91.5 / 100.0	54.0 / 100.0	56.1 / 100.0	65.1 / 100.0	45.2 / 100.0	23.4 / 100.0
WDTO	3.8 / 1.1%	2.2 / 0.6%	2.6 / 0.9%	3.0 / 0.9%	2.0 / 0.6%	3.1 / 0.9%	2.7 / 0.7%		3.4 / 1.2%											
AGRI	12.1 / 3.4%	7.3 / 2.1%	5.6 / 1.8%	0.0 / 0.0%			13.4 / 3.6%	4.7 / 1.5%	0.0 / 0.0%	0.0 / 0.0%										

Headcount (Undupl.)

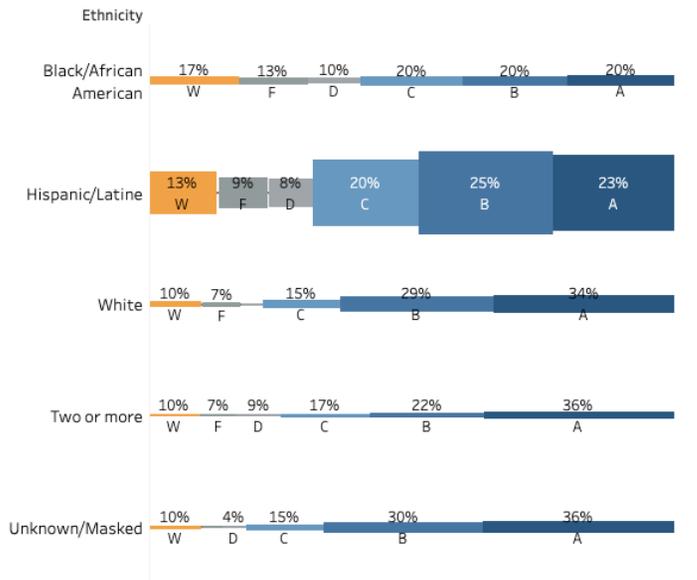
Retention Rate

Success Rate

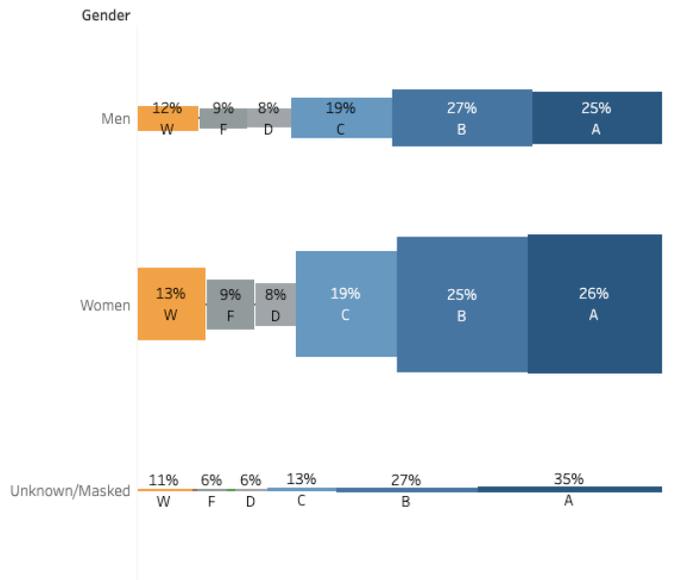
Grade Distribution for **BIOL**



Grade Distribution for BIOL by Ethnicity



Grade Distribution for BIOL within Gender Sub-groups



Grade Distribution for BIOL by Ethnicity and Gender | 2023-2024 & 2024-2025

Ethnicity	Gender	W	F	D	C	B	A
Black/African American	Men	15%	10%	15%	22%	19%	18%
	Women	18%	14%	8%	19%	19%	21%
Hispanic/Latine	Men	12%	10%	8%	20%	27%	22%
	Women	13%	9%	9%	20%	25%	23%
White	Men	11%	9%	4%	14%	30%	33%
	Women	10%	7%	4%	15%	29%	35%
Two or more	Men	8%	5%	13%	22%	24%	28%
	Women	11%	8%	7%	16%	22%	37%
Unknown/Masked	Men	11%	3%	7%	15%	32%	32%
	Women	8%	5%	3%	16%	29%	40%



Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Sciences, and Engineering / Chemistry (CHEM) For Planning Years: 2026-2027

Name of person leading this review: All listed below

Names of all participants in this review: Carlos Hernandez, Thamrongsak (Billy) Cheewawisuttichai, Alexandra Schroer, Jessica Harper

Part 1. Program Overview: Briefly describe how the program contributes to the district mission

The chemistry program contributes to the district mission by supporting a diverse student population and their learning needs. A number of the chemistry courses are prerequisites for nursing, respiratory and radiology programs, and many of the graduates stay in the community to work. Chemistry is also a prerequisite for various degree offerings in biology, engineering, and kinesiology, as well as both of AVC's Bachelor's degree programs (Airframe Manufacturing Technology and Respiratory Care). Students in chemistry classes have also completed the AS in Chemistry, LAS-Math and Sciences, or Physical Sciences degrees.

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the Success & Retention and Program Award data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
• What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the Success & Retention data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
• Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the Strengths and Accomplishments section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

We are offering undergraduate research, honors options for all General and Organic (with CHEM 220 being added this semester), and other student projects to meet student requests and interest. Faculty are supporting students to prepare posters and presentations for conferences. CHEM 990 Research Practicum is currently under review at the Chancellor's office. This noncredit course institutionalizes extraneous student projects, giving them a specific curriculum to develop essential career skills.

Students no longer have to pay for a CHEM 110 lab manual. All experiments are available via Canvas. CHEM 101 instructors are collaborating on a similar project. CHEM 110 has joined the other chemistry courses as having laboratory experiments that provide students with a learning experience coordinated with the lecture material and strengthens the concepts learned in the lecture component of the course.

The Chemistry -AS degree was approved by AP&P and is now available for students. The high retention rate (88%) for students is thought to be an anomaly because it does not appear to translate to success (75%). Students who know they are failing for some reason choose to stay in the course rather than withdraw. Better communication with counselors is crucial and students perhaps need to be made aware of the ramifications of their decisions, especially when it comes to their overall academic record.

We adjusted the offerings of CHEM 101 (introductory chemistry) and 110 (general chemistry) to balance the true need. For some time, the demand for CHEM

110 was falsely high because students did not heed the advisory to take introductory chemistry. With support from counselors to help students take CHEM 101 first, we are now offering more CHEM 101 sections and fewer CHEM 110.

Enrollment data show continued slight increases in retention and success rates, with no noteworthy changes. Similarly, SLO data shows all targets met, with no items of concern. Additional improvements feel unattainable due to faculty feeling overwhelmed with the extra load and no additional help.

In anticipation of the CCN changes, we have developed multiple measures to meet the prerequisite that will potentially be instituted by the chancellor's office.

We encourage students to take advantage of excellent support programs such as MESA (Mathematics, Engineering, and Science Achievement), STEM club and other campus clubs, and undergraduate research opportunities.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Several of the chemistry faculty are approaching retirement age and discussing the need to train new faculty before it is too late. Even now, current faculty are being pushed to teach 25 LHE per semester just to offer the number of sections traditionally available to students. Our data shows that among the five full-time faculty we have 4.53 full-time FTEF and 2.00 FTEF overload which would account for 30 LHE. We have 4.27 part time FTEF. The situation is getting desperate. In summer and spring 2025, fully enrolled classes had to be cancelled because no one was available to cover the additional load. These cuts are contrary to the college's push to increase FTES. Also, obviously, being stretched so thin makes it difficult for faculty to give the same attention to all students and curriculum development as we would with a normal teaching load. Clearly, there is a need for additional faculty even though the faculty hiring prioritization does not reflect this great need.

Training of faculty is needed to help expand use of laboratory instrumentation in class offerings. There is also need for additional "workhorse" equipment such as hot plates, pH meters, etc. Book requisitions, even when submitted on time, do not necessarily result in books being available at the start of the semester. This makes it difficult for students to prepare and keep up with their classes. At the same time, not enough copies are secured, and many students must wait for weeks to obtain a copy of the book. Chemistry faculty are discussing improvements in lab experiments for CHEM 110, 210 and 220 to incorporate lessons learned from the undergraduate pilot programs.

This past year, instrument failure hindered student instruction. Instrument repair needs to be prioritized so as to not impact student learning. A service maintenance contract would be worth the investment to avoid disruptive outages.

ChatGPT and kin is an obvious challenge that we all face. It is unfortunate that students depend so heavily on it. Not only do they not have the skills to recognize incorrect answers, but it seems to be quickly draining academic ability. Critical thinking, recall and problem solving skills seem to be dropping rapidly.

We found that group and embedded tutors made an important impact on achievement. Whereas CHEM 120 SLO 2 has only 51% success 2023, in 2024 it rose to 69%. Much of this success was attributed to the experienced group tutor. Continued support from the Learning Center is essential. However, the tutor proposed to the Learning Center as a replacement, has not yet been hired. As of November 2025, this student who applied in May 2025 is still being processed. Apparently, she will be able to tutor in spring. We do not understand the selection process, the lengthy 'onboarding' process, nor the assignment process as some tutors have been assigned to courses for which they were not requested. Since our input for tutors is regularly requested, we would appreciate our recommendations being honored or even acknowledged. We would also appreciate an expedited hiring process so that tutors, teachers, and the students hoping for a tutor will know the situation. Because students are in theory here only four semesters, the time it takes to interview, process, and train a tutor eats up valuable time. This cuts into the time that the tutors, personally selected by their instructors, could be working in the classroom. There has been rumor that

the learning center is considering bringing in outside tutors. Having professional tutors would not only cost more but would defeat the advantage of learning from a peer.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The Chemistry Department aspires to provide quality chemical education and expose students to research-grade equipment, with opportunities for undergraduate research. The department also aims to prepare students for the nursing, respiratory, or radiologic technology programs as well as chemistry and other science majors. The department also looks to promote the AS degree in chemistry to help students excel in university chemistry programs and to be prepared with excellent laboratory skills, which may also lead to placing students with employers in the community. Lastly, we aspire to provide students with an extensive tutoring program, through the different support services made available (i.e. The Learning Center, MESA, etc.).

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans (CIPs)** and progress toward meeting those plans.

Past Course Improvement Plans	Progress Made
Get students used to working in hands-on lab	Pilot projects related to undergraduate research are in progress with the goal to have them incorporated into future curricula.
The current faculty are finding it difficult to cover all the classes in the schedule.	Classes have been cut from the schedule to relieve some of the stress on faculty. It is critical to hire additional faculty.
Need to meet CHEM 120 SLOs. Because the CHEM 120 SLOs depend on foundational knowledge from CHEM 110, we should try to coordinate more to ensure that foundation is there.	Department meetings on Fridays enable a few faculty to meet between classes to discuss continuity and arising issues.
CHEM 110 and 120 students often do not have strong enough math skills to support their understanding of chemistry concepts.	Making better use of the math learning resources. Communication has already led to development of workshops on specific topics (metric prefixes, conversion factors, graphing, logarithms...).

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
Hire additional full-time faculty and increase the adjunct pool.	Negative progress. Long time, excellent, part time instructor retired. We lost a potential part-time instructor when she received an offer from a competing college before we were able to hire her.
Obtain approval of CHEM 990	Currently at state-level review.

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1	ILO 4. Career and Specialized Knowledge	AS CHEM PLO#1	CHEM 110,		Goal #5 Education: Expansion of offerings and	To improve student success by incorporating more hands-on activities	Ensure adequate supplies for students in lab.	Students will successfully exceed lab SLO in most courses.

			120, 210, 220 SLO #1		effective course scheduling.	and instrumentation in the lab classes.	Continue to support undergraduate research. Train instructors to keep up to date with new equipment and techniques.	
#2	ILO 2. Creative, Critical, and Analytical Thinking		CHEM 110, 120, 210, 220 SLO #2		Goal #2 Equity: Improve the college culture by becoming a more caring, welcoming, accessible, and inclusive campus.	To improve student retention by working more closely with the learning center.	Coordinate with math learning specialists.	Chemistry overall will have a 5% increase in success rate.
#3	Choose ILO				Choose an item.			
#4	Choose ILO				Choose an item.			

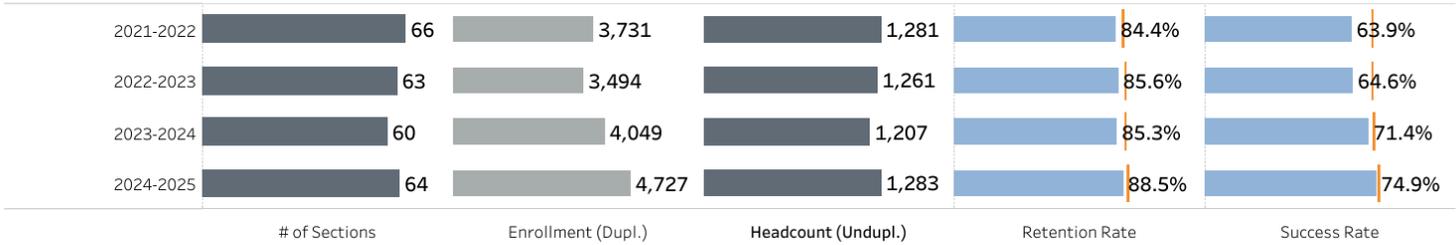
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)

Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Faculty	Hire additional full-time faculty and increase the adjunct pool.	Goal #1 and Goal #2	Repeat	\$150,000	Recurring	Jedi Lobos
Supplies	Additional budget for lab supplies is essential to ensure enough materials for all students	Goal #1	Repeat	\$80,000	Recurring	Maria Groth
Professional development	More training on undergraduate research design and instrumentation to achieve our goal of expanding research opportunities for students	Goal #1	Repeat	\$15,000	Recurring	Thamrongsak Cheewawisuttichai
Other	Maintenance Contract for instrumentation	Goal #1	New	\$15,000	Recurring	Maria Groth
Choose an item.			Choose an item.		Choose an item.	

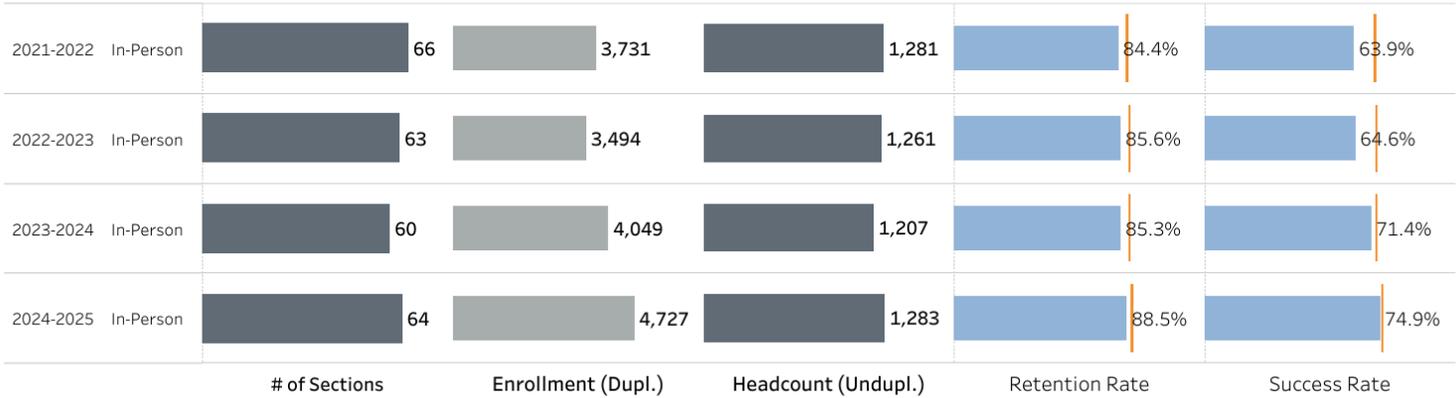
Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).
 Required:

- Enrollment tab
- Equity tab

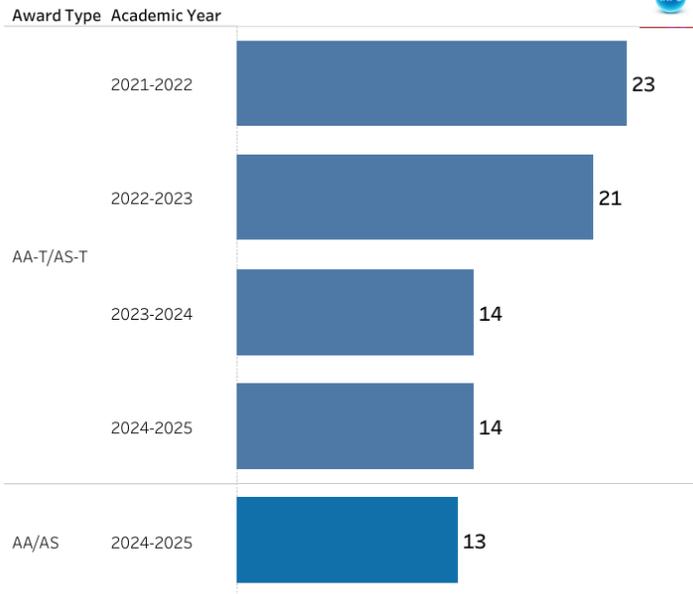
CHEM: Enrollments, # of Sections, Retention and Success



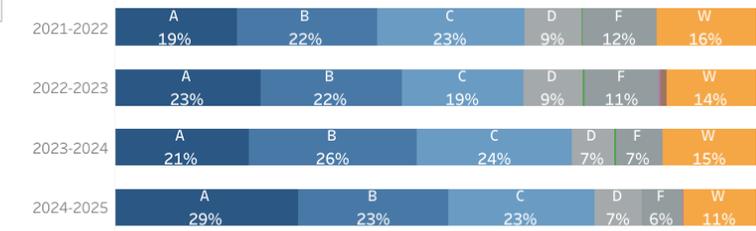
CHEM: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: AS-T Chemistry & Chemistry AS



Grade Distribution for CHEM



Classroom Teaching FTEF in CHEM

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	4.07	4.07	4.13	3.20	4.27
Full-time FTEF	4.80	4.07	4.27	4.53	4.53
Overload FTEF	2.00	1.20	1.05	1.40	2.00
Grand Total	10.87	9.33	9.45	9.13	10.80
FTES	164	153	145	146	161
FTES/FTEF Ratio	15	16	15	16	15
WSCH/FTEF Ratio	452	491	462	479	448
WSCH	4,914	4,584	4,363	4,375	4,842



Click for Fill Rates

Click for FTES

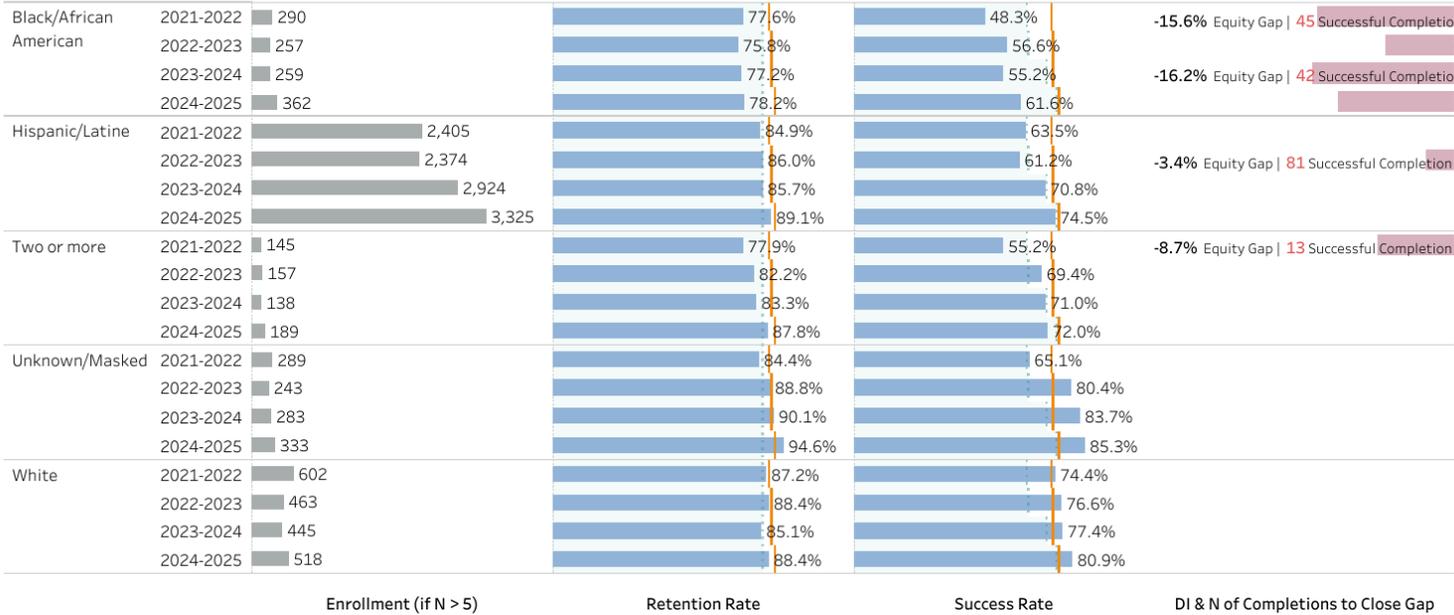


AVC Total Retention and Success are shown in vertical | **CHEM Success Rate is Green** |

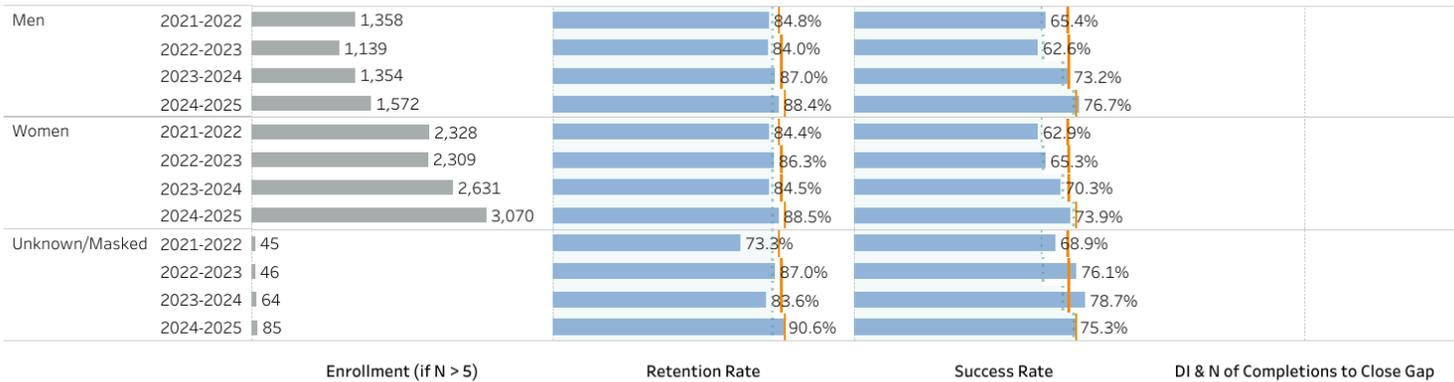
When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the PPG methodology. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.

To estimate the number of additional successful completers needed to close the equity gap, multiply the subgroup enrollment by the size of the DI gap (i.e., the difference between the average rate and the subgroup rate).

CHEM Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



CHEM Enrollment, Retention & Success for by Gender (if greater than 5)



Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?



Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Sciences, and Engineering / Computer Science (CS)	For Planning Years: 2026-2027
---	--------------------------------------

Name of person leading this review: Kyu Lee
--

Names of all participants in this review: Jonathan Compton, Mike Pesses, Jedidiah Lobos
--

Part 1. Program Overview: <i>Briefly describe how the program contributes to the district mission</i>
--

The Computer Science program supports the district mission by preparing students for transfer and employment in the local North Los Angeles County region, where aerospace, defense, unmanned systems, and advanced manufacturing industries continue to drive workforce demand. The program offers foundational courses in programming, algorithms, data science, and AI-related skills that align with the academic requirements for the associate degree, facilitating transfer to UC and CSU institutions while also supporting direct entry into local technical career pathways.

In addition to the AS-T in Computer Science, the program offers stackable preparation through the Programming Fundamentals Certificate, which enables students to develop practical skills for internships and entry-level employment. Coursework also supports specialization in areas such as data analytics, machine learning, and industry-recognized certifications (e.g., Cisco networking, Python programming). These options provide students with multiple on-ramps to academic and career goals, while strengthening regional workforce alignment, particularly with aerospace employers located in Lancaster, Palmdale, and the broader Antelope Valley.

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:
--

Overall (Use the *Success & Retention* and *Program Award* data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the *Success & Retention* data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)
--

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
 - The success rates for Computer Science are 68.5% for the 2023-2024 academic year and 70.6% for the 2024-2025 academic year. This represents a 2.1% increase compared to the previous academic year.

- The retention rates for Computer Science are 82.4% for 2023-2024 and 86.4.6% for 2024-2025. This represents a 4.0% increase compared to the previous academic year.
- What are the trends for the number of awards granted? Are the number of awards going up or down?
 - From the number 2024-2025, the number of awards is continuously going up to 24
- Which ethnic / gender student groups complete their courses at the highest rates?
 - The group “unknown” has the highest rate, which is 82.4%. The 2nd highest group is “white,” which is 72.7%. However, the enrollment numbers for the highest rate group are relatively lower than those of the other groups, which have the majority of enrollments.
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.
 - The ethnic group that has the largest gaps is the “Black/African American” group, which is 53.3%.
- For the first academic year of the Computer Science program, the success and retention rates are quite good. The retention rate is 86.45%, while the success rate is 70.6%. These rates are higher than those of last year by a few percentage points.
- To increase success and retention rates, CS students are encouraged to participate in extracurricular activities such as the STEM club, SWE (Society of Women Engineers), and volunteer opportunities at division events. These experiences not only enhance learning but also build a sense of community and support among students.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

- To improve student success and reach an 80% success and retention rate by the 2026–2027 academic year, the Computer Science program will strengthen instructional alignment, student engagement, and academic support systems. Faculty will collaborate through shared course plans, content exchanges, and peer feedback to reduce variation across course sections and improve consistency in learning outcomes. A shared communication and resource pool will be established to support ongoing coordination among full-time and adjunct faculty.
- In addition to instructional alignment, the program will expand structured student support and enrichment opportunities, including a CS tutoring system, an active Computer Science student club, and faculty-mentored undergraduate research opportunities that enable students to present or publish work at regional conferences. The program will also host periodic academic seminars and industry-focused talks to increase student exposure to current technologies, workforce expectations, and transfer pathways. These combined efforts will strengthen retention, build community, and improve preparation for both transfer and employment.
- To close equity gaps, the Computer Science program will continue to offer multiple course modalities (online, hybrid, and in-person) and expand the use of active learning strategies to support diverse learners. The program will increase access to technology through the availability of computer labs and a laptop loan system, and will create structured peer-support models, such as student-led study groups and embedded tutoring. Student-focused academic seminars and research presentations will also be added to strengthen engagement, confidence, and sense of belonging for disproportionately impacted student groups.

Aspirations: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

- The Computer Science program aims to be known as a clear and well-supported pathway that prepares students for both university transfer and direct entry into high-demand technical careers, including software development, web development, cybersecurity, network administration, data analytics, and AI/ML applications. The program provides the foundational coursework required for the AS-T degree while also equipping students with the practical skills needed to pursue industry certifications and paid internships, supported by regional partnerships with technology and aerospace employers.
- A desired future for the Computer Science program is to increase student success and retention rates to 80% or higher, expand enrollment through additional online and dual-enrollment offerings, and establish formal transfer and internship pipelines with CSU, UC, and regional aerospace and technology employers. The program will also expand its technical certificate options in areas such as cybersecurity, cloud computing, and data analytics, supported by faculty-industry partnerships and a fully operational peer tutoring and undergraduate research model.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans (CIPs)** and progress toward meeting those plans.

Course	SLO Achievement Target	Past SLO Performance	Actual SLO Performance	Change from previous SLO Performance
CS100	70%	89.47%	83.1%	-6.37%
CS110	70%	84.54	83.72%	-0.82%
CS120	70%	91.58%	84.93%	-6.65%
CS121	70%	87.65%	82.56%	-5.09%
CS122	70%	57.58%	83.33%	25.75%
CS130	70%	100%	82.35%	-17.65%
CS131	70%	94.52%	93.85%	-1.67%

CS132	70%	N/A	100%	N/A
CS140	70%	95.12%	88.89%	-6.23%
CS150	70%	64.75%	61.4%	-3.35%
CS230	70%	100%	N/A	N/A
CS231	70%	N/A	N/A	N/A

SLO:

CS 100 - This course will continue to engage students through web design projects and informative programming labs, which will help them analyze the given problems. This course will utilize numerous hands-on projects to practice web development systems and the fundamentals of programming languages. It appears that the past SLO performance was overwhelmingly successful (89.47%), but no data was found for this semester in the Elumen report.

CS110 - It appears that the students meet the achievement target with an SLO performance of 83.72%. This course continues to utilize the fundamental tools and interfaces, including Windows PowerShell and the Command Line Interface, as well as the Mac Terminal, to control computer systems. This course will utilize various terminal interfaces and coding environments, with a focus on Visual Studio Code.

CS120 - Students are successfully meeting the achievement target with an SLO performance of 84.93%. This course will utilize the Windows Subsystem for Linux (WSL) on Windows or macOS to implement advanced C++ programming structures within the Linux OS environment. This course requires additional administrator privileges to manage the Linux OS in the computer labs.

CS121 - Students are successfully meeting the achievement target with an SL performance of 82.56%. This course will utilize the online material, Zybook to practice Java Programming.

CS122 - Students are successfully meeting the achievement target with an SLO performance of 83.33%. This course will utilize Anaconda 3 for managing Python libraries, along with Visual Studio Code and Google Colab for the coding environment. For the Jupyter Notebook interface, we plan to adopt Data Hub from the University of California, Berkeley. They offer cloud computing servers for the community college's notebook server.

CS130 - It appears that the students meet (72.73%) the achievement target. This course will utilize the Windows Subsystem for Linux (WSL) on Windows or macOS to implement advanced C++ programming structures within the Linux OS environment. This course requires additional administrator privileges to manage the Linux OS in the computer labs.

CS131 - It appears that the students meet (93.85%) the achievement target. This course will utilize the online material, Zybook, to practice Java Programming.

CS132 - Students are successfully meeting the achievement target with a Student Learning Outcomes (SLO) performance of 100.00%. The actual SLO shows an overwhelmingly high rate due to the low number of enrollments. In the past semester, CS132 was operated as an independent study with 5 students, and the current enrollment this semester is 6. This course will continue to utilize Anaconda 3 Python libraries within a virtual environment. Additionally, this course incorporates Visual Studio Code and Google Colab.

CS 140 - This course comprises various programming labs and digital circuit simulation labs, designed to teach the fundamentals of computer architecture and the design of CPUs and memories. The students need prior skills in C++ programming, the fundamentals of Boolean algebra, and various command-driven interfaces on the Terminal. It appears that the students meet the achievement target with an SLO performance of 90.48%.

CS 150 - It appears that the students do not meet the achievement target with an SLO performance of 61.4%.

CS 230 - This course requires advanced C++ programming skills, as well as knowledge of data structures and algorithms. The registration needs of students vary from semester to semester. This course was canceled last year and is opening for the first time since the Computer Science program started. There is no comparative data available from the last year, and this course could not be offered this semester either. The number of enrollments in the last semester was low, resulting in a relatively high(100%) SLO performance rate compared to other courses.

CS 231 - This course has not been offered since the CS program started in 2023 due to low student demand.

Past Course Improvement Plans	Progress Made
Goal #1. Providing student-oriented teaching practices such as differentiated instruction and flexible options for assignments	The difficulty levels can be chosen based on the student's decision, which engages more students and can increase the SLO performance rate.

Goal #2. Increase connectivity and engagement	The tools, such as Pronto in Canvas and Starfish, have been utilized to enhance connectivity and engagement. The overall Student Learning Outcomes (SLO) performance rate can be maintained above the achievement target of 70%.
Goal #3: Utilize supplementary tools such as counseling systems and tutoring.	CS140 has implemented an embedded tutor this semester. During lab time, the embedded tutor can assist many students in completing the labs, which enhances the successful SLO rate.

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
Increase the students' academic activity participation, including the STEM CS Club and Undergraduate Research	The new chair of the CS club has been selected this semester. The chair has created several subprojects within the club. Additionally, four new students have started their undergraduate research, and all of them will present their research work at the SCCUR 2025 conference.
Increase the number of CS program awards by 10%	The Computer Science program has been running since 2023. There is not much data available for comparison. The number of awards for the Computer Science program is expected to increase by 10% next year.
Increase the number of AVC students transferring to higher education and pursuing employment opportunities.	The CSUB 2+2 computer science program has started, and many students have already enrolled at CSUB. We continue to collaborate with CSUB professors to organize Summer Workshop programs.

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1	ILO 2. Creative, Critical, and Analytical Thinking	Design, create, and test a program in a high-level, object-oriented programming language based on a given set of specifications.	Plan, code, test, and debug small programs using C programming to solve real-world scientific, engineering and business problems.	Provide the computer resources and tutoring support	Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Offer non-credit courses to adopt new trends, including AI/ML, Data Analysis, and Game Development.	- Propose and develop the new courses, Data Analysis and Game Development	- The number of open courses in the semester - The number of students enrolled in newly opened courses
#2	ILO 4. Career and Specialized Knowledge	Design, create, and test a program in a high-level, object-oriented programming language based on a given set of specifications.	Plan, code, test, and debug small programs using C programming to solve real-world scientific, engineering and business problems	Increase the communication between students and instructor	Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Students can develop the Assembly Program from the high-level language program. Students-to-Students and Students-to-Instructor communication to learn the number representation systems.	- Utilize the embedded tutor for the courses that require advanced, skilled labs. - Utilize the Student Service Center activities to increase students engagement.	- the number of students who meet the achievement target - the number of courses adopted the embedded tutor
#3	ILO 4. Career and Specialized Knowledge	Solve the common problems in the Binary and Hexadecimal number systems	Describe the computer processor's fetch, decode and execute cycle and indicate how an	- Student will have a proactive and creative way. - Increase the engagement through the	Goal #6 Success: Boost success rates by prioritizing the student experience.	- Students can develop the Machine Code Instructions to solve real-world problems.	- Provide the team with programming projects to achieve the goals - Test and debug assembly programs to prove the accuracy of the result.	- the increasing rate of SLO Performance - the number of students who engaged in the students' activity

			interrupt is handled.	course activities.		<ul style="list-style-type: none"> - Understanding the Machine code format. - Understanding the number representation systems - Students will experience communication skills through the team project - Increasing students' engagement 	<ul style="list-style-type: none"> - Increasing group communication skills within the team project. 	
#4	ILO 4. Career and Specialized Knowledge	Design, create, and test a program in a high-level, object-oriented programming language based on a given set of specifications.	Plan, code, run, debug, and document programs written in assembly language	Provide the computer resources and tutoring support	Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	<ul style="list-style-type: none"> - Students need Unix-oriented computer systems in a classroom. - Set up a new classroom for Unix-based computing systems. -Establish a Cloud Data Hub for students to learn and practice server computing systems. 	<ul style="list-style-type: none"> - Request a new classroom for Unix-based computer systems. -Develop a proposal to request a Data Hub for UCB. -Plan the purchase of Unix-based computers. 	<ul style="list-style-type: none"> -the number of Unix-based computer labs -the availability of Cloud Data Hub

Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)

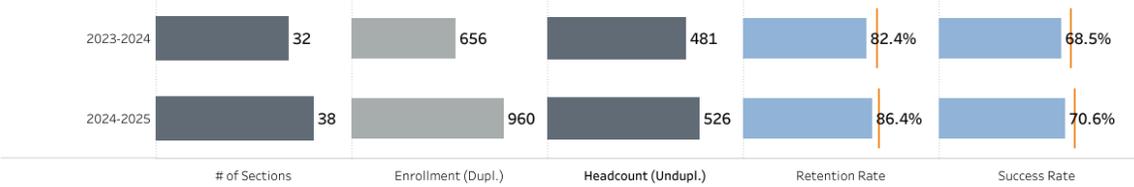
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Technology	Computer labs with dual-booting computer systems for Windows and Linux Or Computer labs with Windows Subsystem for Linux (WSL) installation	#1, #2, #3	Repeat Request	\$70,000	One-time	Kyu Lee
Choose an item.			Choose an item.		Choose an item.	
Choose an item.			Choose an item.		Choose an item.	
Choose an item.			Choose an item.		Choose an item.	

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

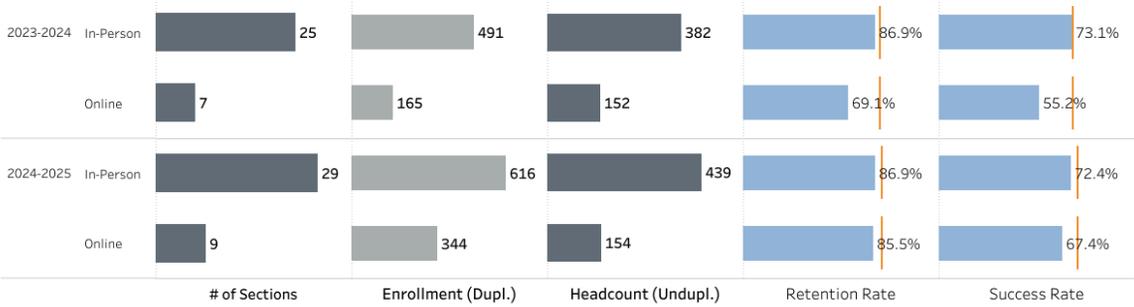
Required:

- Enrollment tab
- Equity tab

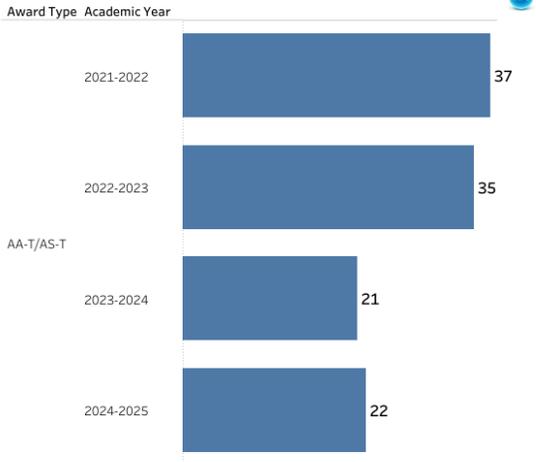
CS: Enrollments, # of Sections, Retention and Success



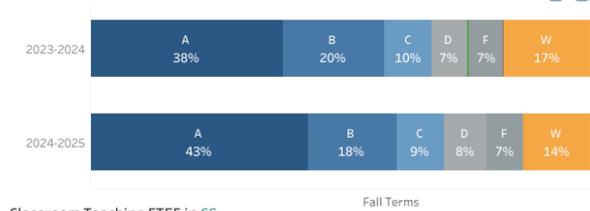
CS: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: AA-T English, English - Non Transfer, English - Transfer



Grade Distribution for CS



Classroom Teaching FTEF in CS

	Fall 2023	Fall 2024
Part-time FTEF	0.87	0.53
Full-time FTEF	3.13	2.33
Overload FTEF	0.33	1.07
Grand Total	4.33	3.93
FTES	34	45
FTES/FTEF Ratio	8	11
WSCH/FTEF Ratio	238	343
WSCH	1,030	1,350



Click for Fill Rates

Click for FTES



AVC Total Retention and Success are shown in vertical | **CS Success Rate is Green** | 
 When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

CS Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)

Race/Ethnicity	Year	Enrollment	Retention Rate	Success Rate	DI & N of Completions to Close Gap
Black/African American	2023-2024	60	78.3%	55.0%	-13.5% Equity Gap 8 Successful Completion
	2024-2025	92	81.5%	53.3%	-17.4% Equity Gap 16 Successful Completion
Hispanic/Latine	2023-2024	422	81.7%	68.9%	
	2024-2025	614	87.5%	71.0%	
Two or more	2023-2024	32	84.4%	56.3%	-12.3% Equity Gap 4 Successful Completion
	2024-2025	43	86.0%	76.7%	
Unknown/Masked	2023-2024	49	85.7%	79.6%	
	2024-2025	68	86.8%	82.4%	
White	2023-2024	93	86.0%	74.2%	
	2024-2025	143	84.6%	72.7%	

Enrollment (if N > 5) | Retention Rate | Success Rate | DI & N of Completions to Close Gap

CS Enrollment, Retention & Success for by Gender (if greater than 5)

Gender	Year	Enrollment	Retention Rate	Success Rate	DI & N of Completions to Close Gap
Men	2023-2024	506	82.4%	69.5%	
	2024-2025	744	85.2%	69.5%	
Women	2023-2024	133	82.0%	63.9%	-4.6% Equity Gap 6 Successful Completion
	2024-2025	191	89.5%	74.3%	
Unknown/Masked	2023-2024	17	88.2%	76.5%	
	2024-2025	25	96.0%	76.0%	

Enrollment (if N > 5) | Retention Rate | Success Rate | DI & N of Completions to Close Gap

Guiding Questions for Reviewing DI Data:

- ❏ What patterns or trends in the DI data suggest inequities among different student groups?
- ❏ What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- ❏ What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- ❏ How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- ❏ What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?





Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Science, & Engineering / Engineering (ENGR)	For Planning Years: 2026-2027
---	--------------------------------------

Name of person leading this review: Jonathan Compton

Names of all participants in this review: Jonathan Compton

Part 1. Program Overview: <i>Briefly describe how the program contributes to the district mission</i>
--

The Engineering program at Antelope Valley College (AVC) contributes to the district mission by supporting: 1) students seeking career technical education to enter the engineering workforce through various specialized certificates and degrees, and 2) students aiming to transfer to four-year universities under engineering transfer degrees by providing the essential coursework required for such transitions.

The faculty and staff of the Engineering Department are committed to offering students hands-on training necessary for skill certification, continuing education classes, professional development, and the opportunity to master the fundamentals required to excel in engineering disciplines. Courses are designed for students who wish to complete a two-year degree or certificate and transfer to a four-year university.

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the *Success & Retention* and *Program Award* data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the *Success & Retention* data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)
--

Success & Retention

- Success Rate: The Engineering discipline shows a stable or slightly increasing success rate, hovering around 75–78% over the past three years.
- Retention Rate: Retention remains strong, consistently above 85%, indicating that students are staying enrolled through the term.
- These rates are above the college-wide average, indicating strong instructional practices and student engagement.

Program Awards

- The number of degrees and certificates awarded has increased modestly, suggesting growing interest and completion in the program.
- This upward trend reflects improved program completion and possibly better advising or curriculum alignment.

Equity Data

Highest-performing groups

- Ethnicity: Asian and White students show the highest success rates, consistently above 80%.
 - Asian students: 82.4%
 - White students: 80.1%
- Gender: Female students outperform male students in success rates, though they represent a smaller portion of enrollment.
 - Female students: 78.9%
- These groups consistently outperform others, suggesting effective support structures and engagement strategies.

Effective Practices

- Strong advising and tutoring support.
- Integration of hands-on projects and industry-relevant curriculum.
- Creation of noncredit technical skills courses.

Enrollment Trends

The data shows stable overall enrollment in engineering courses, with slight fluctuations year to year.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Equity Gaps

Largest gaps

- Ethnicity: Latinx and African American students show a 10–15% lower success rate compared to the highest-performing groups.
- Gender: Male students, despite being the majority, have lower success and retention rates.

Trends: These gaps have persisted over the last review period, though some narrowing is evident due to targeted interventions.

Data

- Latinx students: Success rate of 68.3%, a gap of ~14% compared to Asian students.
- African American students: Success rate of 66.7%, a gap of ~16%.
- Male students: Success rate of 74.1%, ~5% lower than female students.
- These gaps have remained relatively consistent over the past three years.

Challenges

- Transfer before completion: A notable number of students transfer to 4-year institutions before earning degrees or certificates, which affects completion metrics.
- Limited evening/hybrid offerings: May restrict access for working students or those with family obligations.

Opportunities

- Expand mentorship programs for underrepresented groups through the MESA program.
- Increase flexible course offerings (evening, hybrid).
- Strengthen technical skills course offerings through hiring new adjunct faculty.
- Increase flexible scheduling and online/hybrid options to improve access and retention.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Vision for the Program

The Engineering department aspires to be known for:

- Innovative, project-based learning.
- A diverse and inclusive environment that supports all students.
- Highly articulated transfer level courses.
- Technical skill building noncredit courses.

Desired Future

- Increase degree and certificate completion by 20% over the next 3 years.
- Close equity gaps to within 5% across all demographic groups.
- Launch a dedicated Engineering Success Center, in collaboration with MESA, with tutoring, transfer advising, and maker space access.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Insert Advisory Committee Recommendations here (Please do not insert complete meeting minutes, but just recommendations from the advisory committee.)

Insert Labor Market Data here <https://www.labormarketinfo.edd.ca.gov/commcolleges/>

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans** (CIPs) and progress toward meeting those plans.

Course	SLO Achievement Target	Past SLO Performance	Actual SLO Performance	Change from previous SLO Performance
ENGR 110	70%	85.47%	88.02%	+2.98
ENGR 125	70%	88.00%	73.49%	-16.49
ENGR 130	70%	89.29%	92.50%	+3.59
ENGR 140	70%	84.93%	79.85%	-5.98
ENGR 185	70%	N/A	95.65%	N/A
ENGR 210	70%	95.24%	94.44%	-0.84
ENGR 230	70%	N/A	89.48%	N/A

Review of Progress Toward Past Course Improvement Plans

ENGR 110 – Introduction to Engineering

- Previous Performance: 85.47%
- Current Performance: 88.02% (+2.98% improvement)

- Commentary: The course exceeded its SLO target (70%) and showed continued growth. The use of hands-on projects and engaging lectures appears to be sustaining success. Continued funding for materials is essential to maintain this trajectory.

ENGR 125 – Programming and Problem Solving in MATLAB

- Previous Performance: 88.00%
- Current Performance: 73.49% (-16.49% decline)
- Commentary: This is the most significant drop in performance. The department attributes this to increased misuse of AI tools, leading to poor exam performance. A course redesign was implemented to mitigate this issue and refocus on learning outcomes. Continued support for MATLAB Online and zyBooks is necessary.

ENGR 130 – Material Science

- Previous Performance: 89.29%
- Current Performance: 92.50% (+3.59% improvement)
- Commentary: Performance improved and remains well above the target. The hands-on labs and practical problem-solving approach are effective. Continued investment in lab materials is recommended.

ENGR 140 – Engineering 3D Graphics

- Previous Performance: 84.93%
- Current Performance: 79.85% (-5.98% decline)
- Commentary: Although still above the target, there was a slight decline. No specific intervention was noted, but maintaining engaging CAD projects and software access is key to reversing this trend.

ENGR 185 – Digital Logic and Design

- Previous Performance: N/A
- Current Performance: 95.65%
- Commentary: This course showed strong initial performance. The hands-on labs and use of electronic components and software are clearly effective. Continued funding for consumables and lab equipment is essential.

ENGR 210 – Statics

- Previous Performance: 95.24%
- Current Performance: 94.44% (-0.84% slight decline)
- Commentary: Performance remains excellent. The hands-on project approach is sustaining high achievement. Expansion of visual aids and project variety could further enhance learning.

ENGR 230 – Circuit Analysis

- Previous Performance: N/A
- Current Performance: 89.48%
- Commentary: Strong initial performance. The course benefits from hands-on labs and builds on prior physics knowledge. Continued support for software and lab materials is needed.

General Observations and Recommendations

- Successes Sustained: All courses continue to exceed the 70% SLO target, with ENGR 130 and ENGR 185 showing particularly strong results.
- Challenges Addressed: ENGR 125 faced a significant drop, but proactive redesign efforts are underway.
- Resource Needs: All courses rely heavily on college-supported software, hardware, and consumables. Continued and possibly increased funding is necessary to maintain and grow lab capabilities.
- Assessment Practices: The department emphasizes the importance of clear, measurable SLOs, rubric-based evaluations, and collaborative faculty review to improve precision and student learning outcomes.

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
Increase engineering degree completions	<ul style="list-style-type: none"> • The department noted a decrease in completions compared to last year, but overall completions remain above the previous four-year average. • Efforts to improve include: <ul style="list-style-type: none"> ○ Counseling and outreach to make students aware of degree pathways. ○ Strengthening articulation agreements with universities to ensure transferability of all courses.
Increase Hands-On Offerings for Engineering Students	<ul style="list-style-type: none"> • The department has implemented new noncredit courses and is working to increase awareness of these offerings. • Hands-on learning remains a core strength, as seen in high SLO achievement for lab-based courses (e.g., ENGR 130 and ENGR 185).

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				

#1	ILO 4. Career and Specialized Knowledge				Goal #6 Success: Boost success rates by prioritizing the student experience.	Improve Engineering Degree and Certificate Completion	<p>Launch completion awareness campaign (emails, workshops, counseling sessions).</p> <p>Implement early alert system for students at risk of stopping out.</p> <p>Strengthen transfer pathway workshops to emphasize the value of finishing before transfer.</p>	Increase degree and certificate completions by 10–15% compared to last year.
#2	ILO 2. Creative, Critical, and Analytical Thinking				Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Expand Hands-On Learning Opportunities	<p>Develop three new noncredit micro-certifications (e.g., 3D printing, Robotics, and Microcontrollers).</p> <p>Introduce capstone projects in ENGR 130, ENGR 210, and ENGR 230.</p>	Track enrollment and completion in new noncredit courses; survey student satisfaction with hands-on experiences.
#3	ILO 3. Community /Global Consciousness				Goal #6 Success: Boost success rates by prioritizing the student experience.	Close Equity Gaps in Success Rates	<p>Launch peer mentoring program targeting underrepresented groups through MESA.</p> <p>Offer supplemental instruction sessions for major courses (ENGR 130, ENGR 210, and ENGR 230).</p>	Reduce equity gaps to within 8% by end of review cycle.
#4	ILO 1. Communication				Goal #3 Resources: Increase student awareness about campus resources.	Strengthen Technical Communication Skills	<p>Integrate technical writing modules into ENGR 110 and ENGR 130.</p> <p>Host engineering communication workshops in collaboration with English faculty.</p>	Assess improvement through SLO rubrics and student feedback.

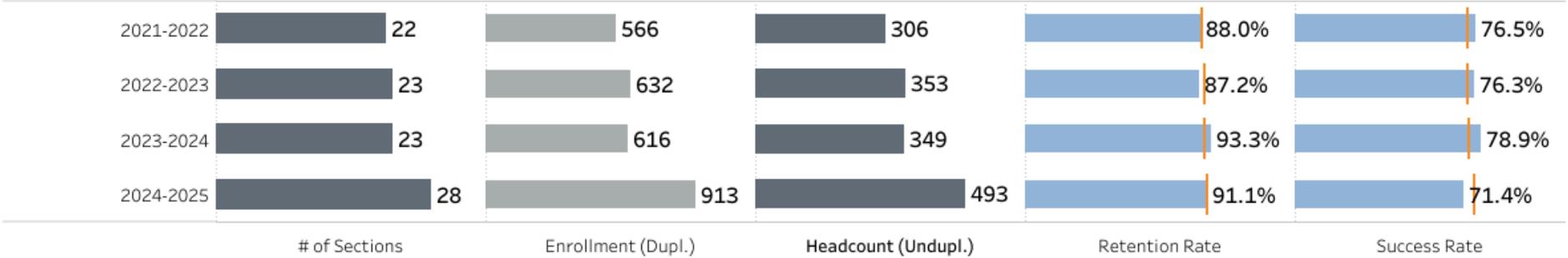
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)						
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Classified Staff	Full time lab technician	Expand Hands-On Learning Opportunities	New	\$75,000	Recurring	Jonathan Compton
Faculty	Full time faculty	Improve Engineering Degree and Certificate Completion	Repeat	\$100,000	Recurring	Jonathan Compton
Technology	Software for courses (MATLAB, Solidworks, Multisim, etc...)	Expand Hands-On Learning Opportunities / Close Equity Gaps in Success Rates / Strengthen Technical Communication Skills	Repeat	\$20,000	Recurring	Jonathan Compton
Supplies	We need supplies for our labs (metal samples, IC's, measurement devices, straws, etc..)	Expand Hands-On Learning Opportunities / Close Equity Gaps in Success Rates / Strengthen Technical Communication Skills	Repeat	\$5,000	Recurring	Jonathan Compton
Technology	We need equipment for our labs. We have devices that need to be replaced and/or refreshed including: Power supplies, trainer boards, tensile tester, etc...	Expand Hands-On Learning Opportunities / Close Equity Gaps in Success Rates / Strengthen Technical Communication Skills	Repeat	\$100,000	Recurring	Jonathan Compton

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

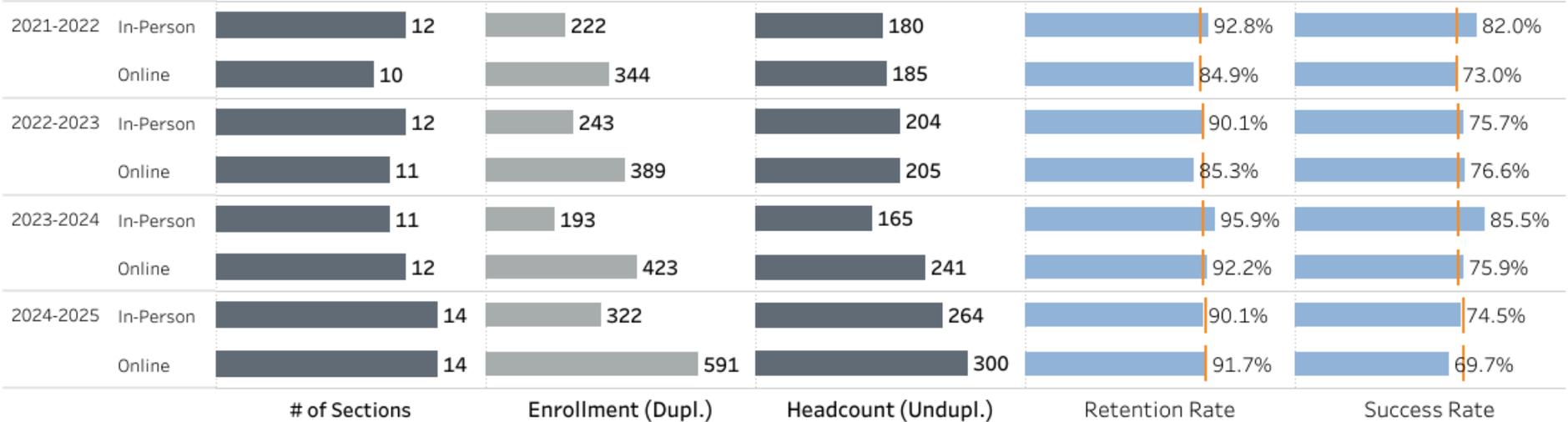
Required:

- Enrollment tab
- Equity tab

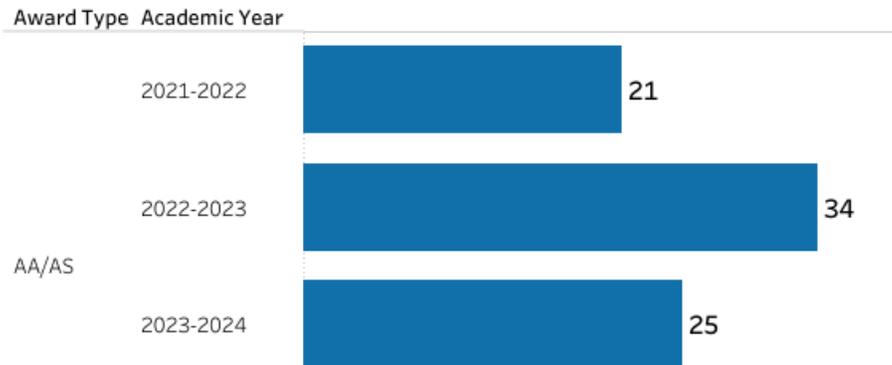
ENGR: Enrollments, # of Sections, Retention and Success



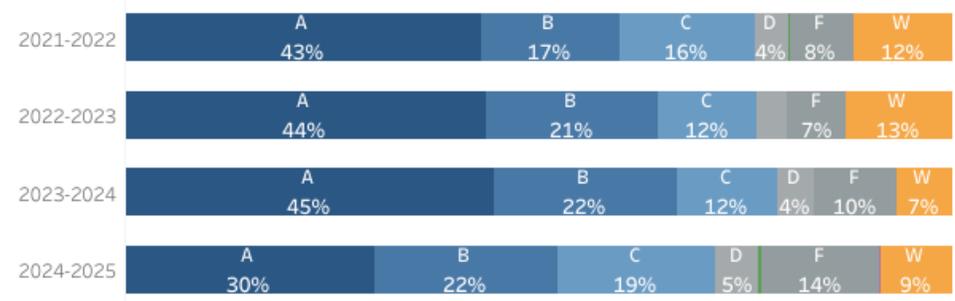
ENGR: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: Computer Engineering, Electrical Engineering, Engineering Fundamentals and 1 more



Grade Distribution for ENGR



Classroom Teaching FTEF in ENGR

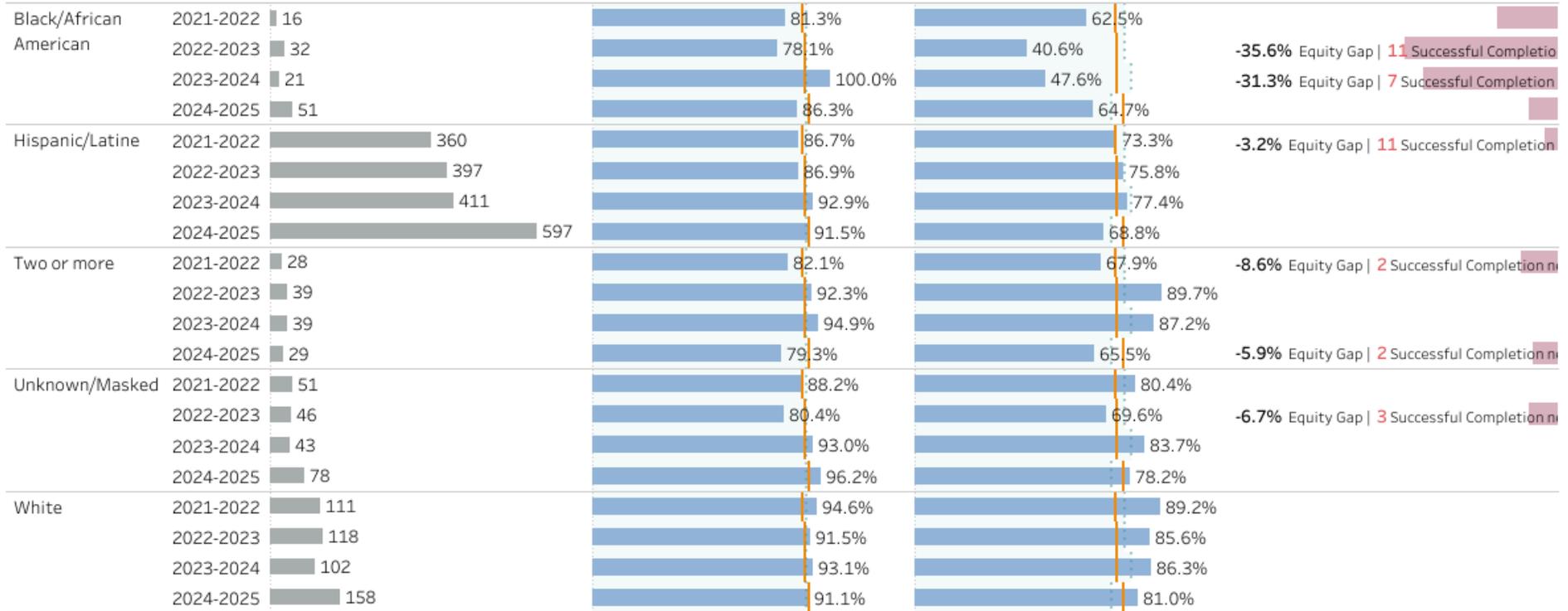


AVC Total Retention and Success are shown in vertical | ENGR Success Rate is Green |

When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.

To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

ENGR Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



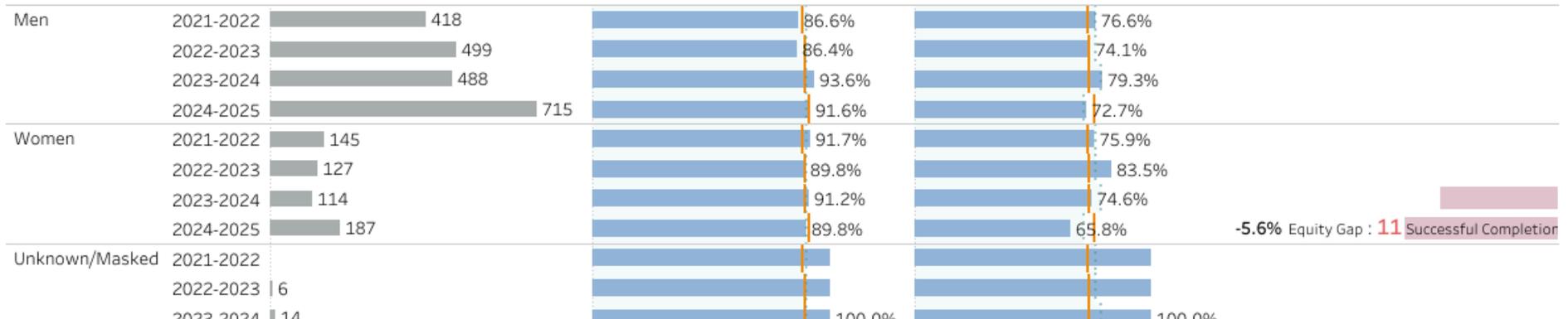
Enrollment (if N > 5)

Retention Rate

Success Rate

DI & N of Completions to Close Gap

ENGR Enrollment, Retention & Success for by Gender (if greater than 5)



43% received Grade: **A**

Ethnicity	Gender	Grade Distribution				
Black/African American	Men	21% W	7% F	14% D	29% C	29% B
	Women	100% A				
Hispanic/Latine	Men	14% W	8% F	16% C	13% B	45% A
	Women	11% W	16% F	16% C	19% B	33% A
White	Men	6% W	21% C	15% B	51% A	
	Women	9% C	34% B	50% A		
Two or more	Men	21% W	13% D	21% C	46% A	
	Women	25% F		75% A		
Unknown/Masked	Men	14% W	6% F	6% C	31% B	43% A
	Women	6% W	13% D	19% C	25% B	38% A

44% received Grade: **A**

Ethnicity	Gender	Grade Distribution					
Black/African American	Men	24% W	28% F	10% D	21% B	14% A	
	Women	33% F		67% A			
Hispanic/Latine	Men	12% W	8% F	12% C	20% B	44% A	
	Women	17% W	21% C	22% B	33% A		
White	Men	12% W	26% B	51% A			
	Women	17% C	24% B	51% A			
Two or more	Men	8% W	12% C	12% B	65% A		
	Women	8% W	15% C	31% B	46% A		
Unknown/Masked	Men	23% W	5% F	5% D	10% C	21% B	36% A
	Women	14% D	14% C	71% A			

45% received Grade: **A**

Ethnicity	Gender	Grade Distribution				
Black/African American	Men	50%	6%	11%	33%	
		F	D	B	A	
	Women	33%	67%			
		D	B			
Hispanic/Latine	Men	8%	11%	13%	22%	42%
		W	F	C	B	A
	Women	9%	11%	11%	27%	39%
		F	D	C	B	A
White	Men	5%	12%	31%	46%	
		F	C	B	A	
	Women	29%	24%		47%	
		W	B		A	
Two or more	Men	11%	85%			
		B	A			
	Women	17%	17%	25%	25%	17%
		W	F	C	B	A
Unknown/Masked	Men	9%	6%	11%	9%	63%
		W	F	C	B	A
	Women	14%	29%		57%	
		D	B		A	

30% received Grade: **A**

Ethnicity	Gender	Grade Distribution					
Black/African American	Men	15%	10%	6%	13%	35%	21%
	Women	67%			33%		
Hispanic/Latine	Men	8%	16%	6%	23%	22%	25%
	Women	10%	19%	6%	18%	20%	25%
White	Men	9%	9%	15%	20%	45%	
	Women	12%		15%	62%		
Two or more	Men	15%	8%	8%	8%	15%	46%
	Women	25%	13%		19%	31%	13%
Unknown/Masked	Men	9%	14%	29%		43%	
	Women	35%		6%	6%	12%	41%

Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Sciences, & Engineering / Geosciences (GEOG, GEOL, ERSC)	For Planning Years: 2026-2027
--	--------------------------------------

Name of person leading this review: Dr. Mike Pesses
--

Names of all participants in this review: Dr. Aurora Burd, Dr. Mike Pesses

Part 1. Program Overview: <i>Briefly describe how the program contributes to the district mission</i>
--

<p>The Geosciences Department contributes to the institution’s “quality, comprehensive education” by offering rigorous courses that lead to associates degrees, transfer, and career technical education.</p>

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:
--

Overall (Use the <i>Success & Retention</i> and <i>Program Award</i> data to inform your analysis)
--

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the <i>Success & Retention</i> data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: <i>(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)</i>

<p>In Geography, the data show positive trends and accomplishments. Enrollment and headcount growth increased by 50% over the four-year period. Retention rates improved consistently, reaching a high of 96.5% in 2024–25, and the success rate climbed to 83.5%, marking a significant rebound from the prior year. Our online offerings have been quite successful, expanding from four sections in 2021–22 to fifteen in 2024–25, with success rates consistently higher than in-person courses. Program completions also increased, with a notable rise in certificates and AA-T awards during the most recent year. A lot of this can be attributed to the faculty working hard to create challenging yet accessible courses, as well as thinking about student demographics when it comes to class modalities and assessments.</p>

<p>The Geology data show excellent retention and success rates, higher than the AVC averages, and enrollment has been trending up. Online instruction continues to dominate course delivery, accounting for roughly two-thirds of sections, and maintains strong retention though with slightly lower success rates compared to in-person classes. Notably, in-person courses in 2024–25 achieved exceptional outcomes, with a 96% success rate and 98% retention.</p>
--

<p>Earth Science’s transition from in-person to partially online delivery in 2023 was highly successful. Partially online courses now account for all sections offered, maintaining comparable or improved outcomes relative to prior in-person formats.</p>
--

Opportunities and Challenges: <i>(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)</i>
--

In Geography, we have seen increased enrollments despite fewer sections offered. While this might seem like a positive thing, it goes to show that our faculty are being forced to teach more students in less time. Our metrics like the WSCH/FTEF and FTES/FTEF ratios show an efficiency at work, but in reality, our faculty are being stretched too thin and burnout is inevitable.

Both Geology and Earth Science have shown a decrease in the FTES/FTEF and WSCH/FTEF ratios during the study period.

However, this appears to be due to a problem with the dashboard, as the number of ERSC 101 sections and unduplicated students has remained relatively stable from 2022-2023 to 2023-2024 (4 sections, 92 & 91 students), but FTES/FTEF ratio has gone from 11.9 to 6.0 and WSCH/FTEF from 357.4 to 179.6. During this time, ERSC 101 switched from being in-person to partially online (shown only as “online” in the dashboard) and the amount of FTEF has not changed, but the FTES has approximately halved. This makes no sense because ERSC 101 continues to be a 4-unit course for students and 6 LHE course for the instructor.

Additionally, during Fall 2023, the sole instructor for ERSC 101 was only paid 9 LHE (0.6 FTEF) for the two sections of ERSC 101, instead of 12 LHE (0.8 FTEF). AVCFT disputed this, but the AVC administration continues to refuse to pay the additional 3 LHE. AVC Administration maintains that this teaching assignment was only 9 LHE instead of 12 LHE because two online lecture sections (half of each ERSC 101 CRN) were treated as a class of 48 with no additional pay despite the listed class maximum of 24. This occurred with no advance notice to the affected faculty. **To reiterate: the Full-time FTEF listing for Fall 2023 of 0.80 is incorrect (and possibly fraudulent, since claims someone received pay that was never received) and should be 0.60. This discrepancy should also affect the various ratios shown.**

For GEOL the drop in FTES/FTEF Ratio and WSCH/FTEF ratio from Fall 2022 to Fall 2023 represents a temporary structural change to the geology program, as during the maternity leave of the main GEOL instructor in 2022-2023 there were no adjunct instructors available (or hired, despite ample advanced notice of the instructor’s planned leave) to teach face to face, so nearly all lab sections (with a class maximum of 24) were cancelled, leaving only online lecture sections with class maxima of 48. This temporarily inflated the FTES/FTEF and WSCH/FTEF, which then returned to near baseline values once the instructor returned and lab sections resumed.

Additionally, the full-time geosciences faculty are heavily involved in shared governance and service to the institution, something that is not reflected in the program review data. We can get by, and clearly, we can perform well in certain metrics, but classroom innovation suffers when we continue to be expected to do more with less.

While overall success data are trending well, equity data show some troubling trends. Analysis of the equity data show that in Geography only Black/African American students face a disproportionate impact out of all the racial and gender categories. Interestingly, from a course content perspective, many of the geography classes have racial and gender issues discussed as they pertain to either natural or cultural geography, including those specific to African Americans. This would suggest that the issue is larger than the classroom. Geology and Earth Sciences courses also reveal Black/African American students having a disproportionate impact. In addition to the equity data, multiple visually impaired students have enrolled in the geography and geology lab classes and ERSC 101, presenting a big challenge. Most instruction and activities are based upon visual resources. While accommodations have been made and students have been “successful” in the classes, research should be done on how to make meaningful lab activities for visually impairment and physical limitations students may face.

One student in a physical geography course this Fall 2025 semester mentioned that she wants to be a geology major but had no idea that that was an option at AVC. This is her last semester, so she will transfer to a university and start taking geology courses there. This isn’t the first time a student has been ignorant of what the geosciences program offers, and it represents a failure to reach the students who could be completing our programs. Without a third full-time geosciences faculty member (a position that has historically existed since at least the 1990s), it is difficult to keep up with student demand for classes, and to also have the time to dig into equity data, come up with solutions, and simultaneously figure out how to make interested students aware of our programs.

Additionally, starting in Fall 2025, there is a new Fundamentals of Geology Certificate available to try to capture completion of students who are interested in geology but are not planning to complete (or have not yet completed) the AS-T Geology.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

In an area of incredible geologic structures, unique desert ecosystems, and a defense industry reliant on mapping and geospatial technology, Antelope Valley College should have the strongest geosciences program out of all the community colleges. Student interest as well as success in the courses has grown over the years, but we have struggled to recruit new majors and help them make the most of their time here at AVC.

Our desired future is to have a much stronger program that can incorporate undergraduate research projects, larger degree and certificate completions, and more field-based class offerings.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Insert Advisory Committee Recommendations here

The GIS advisory committee has encouraged the 8-week course format, as well as a project-based learning strategy to get students learning how to solve problems with the technology rather than learn how to press certain buttons. More instruction in developing online applications is desired.

Insert Labor Market Data here <https://www.labormarketinfo.edd.ca.gov/commcolleges/>

Projections of Employment by Occupation,
2020 - 2030

Selections:

TOP Code(s):

- 190100 Physical Sciences, General
- 191400 Geology
- 193000 Earth Science
- 220600 Geography
- 220610 Geographic Information Systems

Geography: California

Includes: All California Counties

Annual Job Openings by Occupation

SOC Code	Occupation Title (Linked to "Occupation Profile")	2020 Employment	Annual Job Openings (1)
192042	Geoscientists, Except Hydrologists and Geographers	3,400	3,870
119121	Natural Sciences Managers	11,000	10,650
252031	Secondary School Teachers, Except Special and Vocational Education	97,500	75,950
	Total	111,900	90,470

(1) Total Job Openings are the sum of new jobs from growth plus net replacements. Annual job openings are total job openings divided by the number of years in the projection period.

(2) This occupation has been suppressed due to confidentiality.

Table Generated on 10/21/2024 11:02:54 AM

[Save or View in Excel](#) [Back to Occupation List](#) [New Search](#)

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past Course Improvement Plans (CIPs) and progress toward meeting those plans.

Past Course Improvement Plans	Progress Made
GEOG 205: Consistent access to technology	This year showed that our system of keeping our GIS software paid for and operational still struggles. We have too many people responsible for approving

	the purchases, while not being aware of how crucial these purchases are to occur in a timely manner. Student outcomes and retention are suffering, and we still need to find a solution
GEOG 105: Addressing student engagement	Course material had gone “old school” and returned to in person handouts, assignments, and exams. This will be implemented Spring 2026.
ERSC 101: Consistent pay for consistent work to allow course to be kept up to date with new materials and current events	Instructor is now being paid 6 LHE per ERSC 101 course, which allows instructor time to keep course up to date and to grade/respond to student work in a timely fashion.
GEOG 101: modernizing lecture videos	Instructor received a computer refresh that now (barely) supports online course material production. Camtasia project files now no longer have to be transferred to thumb drive and carried to Alex Parisky for export into video format.
GEOG 102L: needs to be scheduled	After not running F2F since Spring 2019 and online since Spring 2021, the course ran F2F during Spring 2025. Course materials were partially refreshed but after closely reviewing the course materials while the course ran during Spring 2025, it is clear the course continues to need revision to ensure preparedness of majors for transfer.

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
Recruiting more students to the GIS program	We have seen higher numbers with the shift to 8-week courses, though students have dropped or stopped attending the courses as we have lost access to software for a significant period of time and they could not complete meaningful assignments.
Refresh main campus supplies and duplicates for Palmdale Center/CSP-LAC	A significant refresh has occurred but there is still additional need.
Hire full-time and adjunct faculty to cover currently available courses	A large step backward has occurred since AVC decided to terminate a valued, excellent adjunct faculty member (who regularly covered 6-9 LHE per term) who moved out of state. Current instructors are not able to handle the available load in GEOL (there are outstanding requests from the Rising Scholars Program and a dual-admit partner school that may not be fulfilled due to existing instructor already being at maximum load).
Modernize lecture videos and content for asynchronous online courses	Main GEOL/ERSC instructor received a badly needed computer refresh, but it is the same computer model and software as the inadequate device, just currently working instead of glitchy. Still concerned that AVC’s provision of technology lags behind what is necessary for instructors who produce their own content for POCR-reviewed online courses.

Part 3: Based on Part 2 above, please list program/area goals:								
Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1	ILO 4. Career and Specialized Knowledge				Goal #5 Education: Expansion of offerings and effective course scheduling.	New Tenure-track Geosciences position	Go through approval process in the Deans and Chairs meetings	When the position is filled
#2	ILO 4. Career and Specialized Knowledge				Goal #5 Education: Expansion of offerings and effective course scheduling.	Explore non-credit class opportunities to expand geoscience offerings	Discuss with AP & P faculty and pursue approval if such courses make sense	Course approval (if applicable)
#3	ILO 1. Communication				Goal #2 Equity: Improve the college culture by becoming a more caring, welcoming, accessible, and inclusive campus.	Develop visually-impaired friendly and other equitable lab activities to ensure all students can have meaningful experience	Research other institutions, develop new labs, purchase new lab equipment	OSD students can be evaluated and successfully meet outcomes for lab classes.
#4	ILO 4. Career and Specialized Knowledge				Goal #6 Success: Boost success rates by prioritizing the student experience.	Refresh GEOL 102/102L supplies so geology majors are transfer-ready	Work with lab tech to place a purchase order, then organize the supplies, arrange for IMC to laminate maps and store them in the available lab space.	When supplies are purchased, organized, and deployed to the Main Campus.

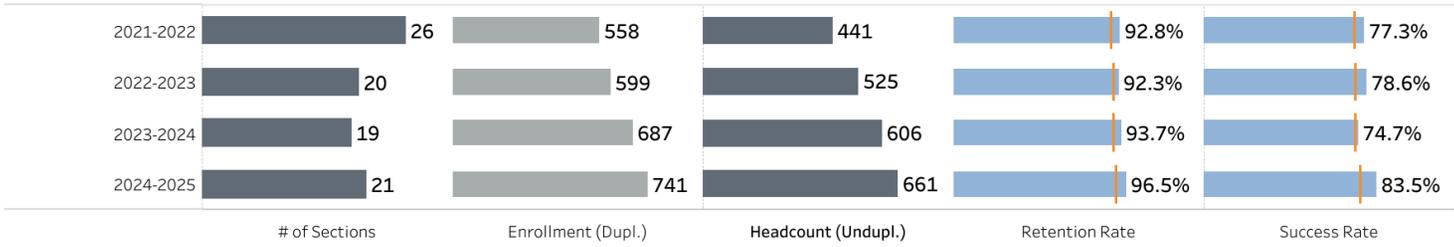
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)						
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Faculty	A new tenure-track geosciences position	#1	Repeat	Average starting salary (~\$100,000)	Recurring	Mike Pesses
Professional development	Conferences or online materials to research equitable lab and instruction methods	#3	New	\$2000	One-time	Mike Pesses
Supplies	Lab materials, including new supplies for accessible labs and capstone courses for AS-T Geology	#3	New	\$5000	One-time	Mike Pesses & Aurora Burd
Choose an item.			Choose an item.		Choose an item.	
Choose an item.			Choose an item.		Choose an item.	

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

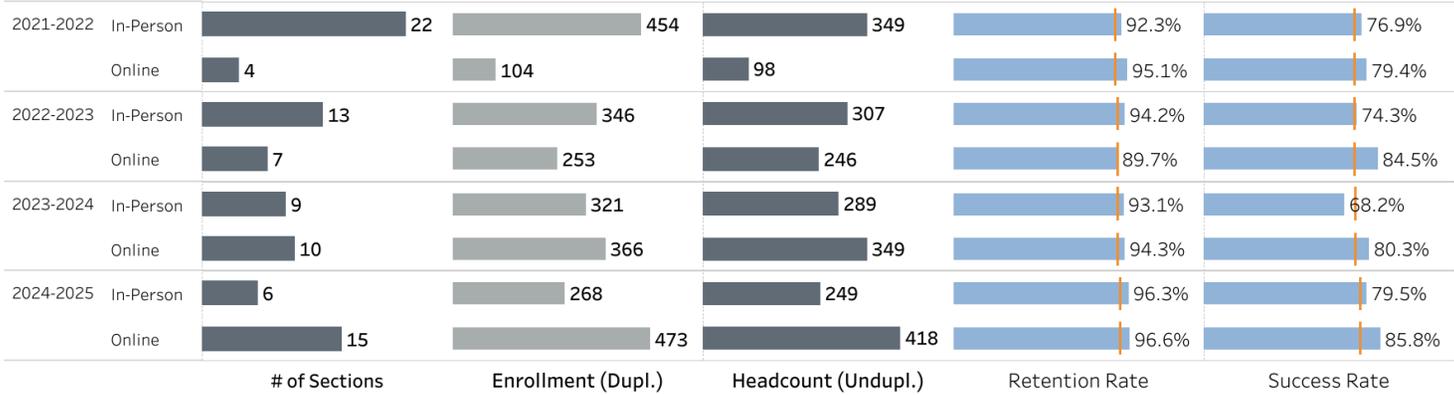
Required:

- Enrollment tab
- Equity tab

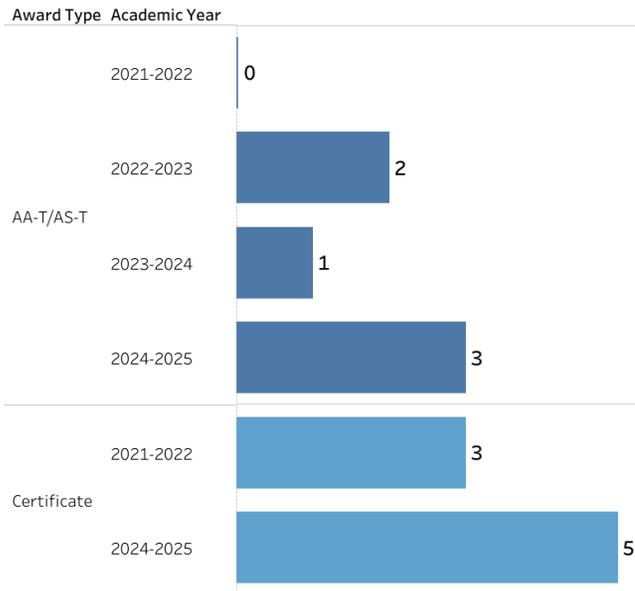
GEOG : Enrollments, # of Sections, Retention and Success



GEOG: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: **AA-T Geography & Geographic Info Systems LCert**



Grade Distribution for **GEOG**



Classroom Teaching FTEF in **GEOG**

	Fall Terms				
	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	0.73	0.77	0.57	0.63	0.40
Full-time FTEF	0.60	1.00	1.00	0.20	0.20
Overload FTEF	0.60			0.60	0.80
Grand Total	1.93	1.77	1.57	1.43	1.40
FTES	31.3	24.3	24.5	23.6	23.7
FTES/FTEF Ratio	16.2	13.7	15.7	16.4	17.0
WSCH/FTEF Ratio	485.4	412.0	469.5	493.1	508.5
WSCH	938.4	727.8	735.6	706.8	711.9



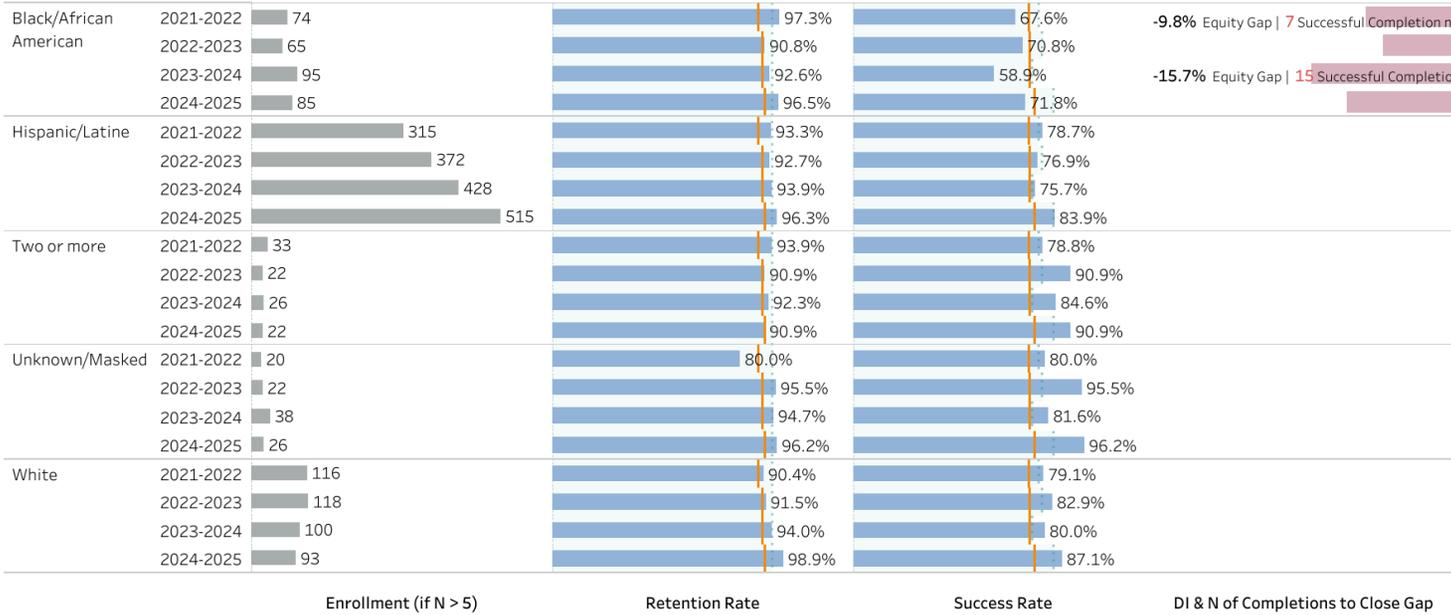
[Click for Fill Rates](#)

[Click for FTES](#)

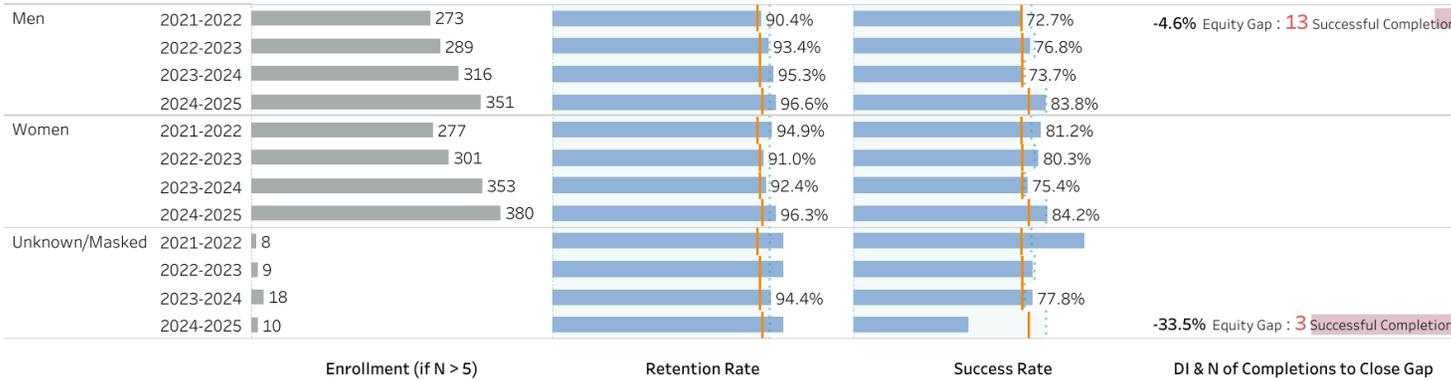


AVC Total Retention and Success are shown in vertical | **GEORG Success Rate is Green** |
 When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

GEORG Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



GEORG Enrollment, Retention & Success for by Gender (if greater than 5)



Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?

ERSC: Enrollments, # of Sections, Retention and Success

Year	# of Sections	Enrollment (Dupl.)	Headcount (Undupl.)	Retention Rate	Success Rate
2021-2022	4	154	101	94.2%	86.4%
2022-2023	4	140	92	99.3%	92.1%
2023-2024	4	182	91	92.3%	85.7%
2024-2025	5	252	87	95.6%	86.1%

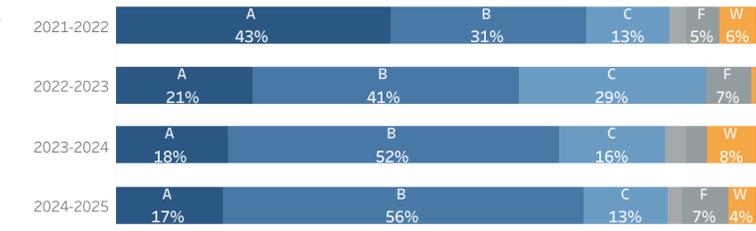
ERSC: Enrollments, Number of Sections, Retention and Success by Modality

Year	Modality	# of Sections	Enrollment (Dupl.)	Headcount (Undupl.)	Retention Rate	Success Rate
2021-2022	In-Person	4	154	101	94.2%	86.4%
2022-2023	In-Person	2	46	46	97.8%	93.5%
	Online	2	94	47	100.0%	91.5%
2023-2024	Online	4	182	91	92.3%	85.7%
2024-2025	Online	5	252	87	95.6%	86.1%

Program Awards: None



Grade Distribution for ERSC



Classroom Teaching FTEF in ERSC

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF		0.40			
Full-time FTEF	0.80	0.40	0.80	0.80	0.40
Overload FTEF					0.40
Grand Total	0.80	0.80	0.80	0.80	0.80
FTES	11.4	9.7	9.5	4.8	4.4
FTES/FTEF Ratio	14.2	12.2	11.9	6.0	5.5
WSCH/FTEF Ratio	427.1	365.3	357.4	179.6	165.0
WSCH	341.7	292.2	285.9	143.7	132.0



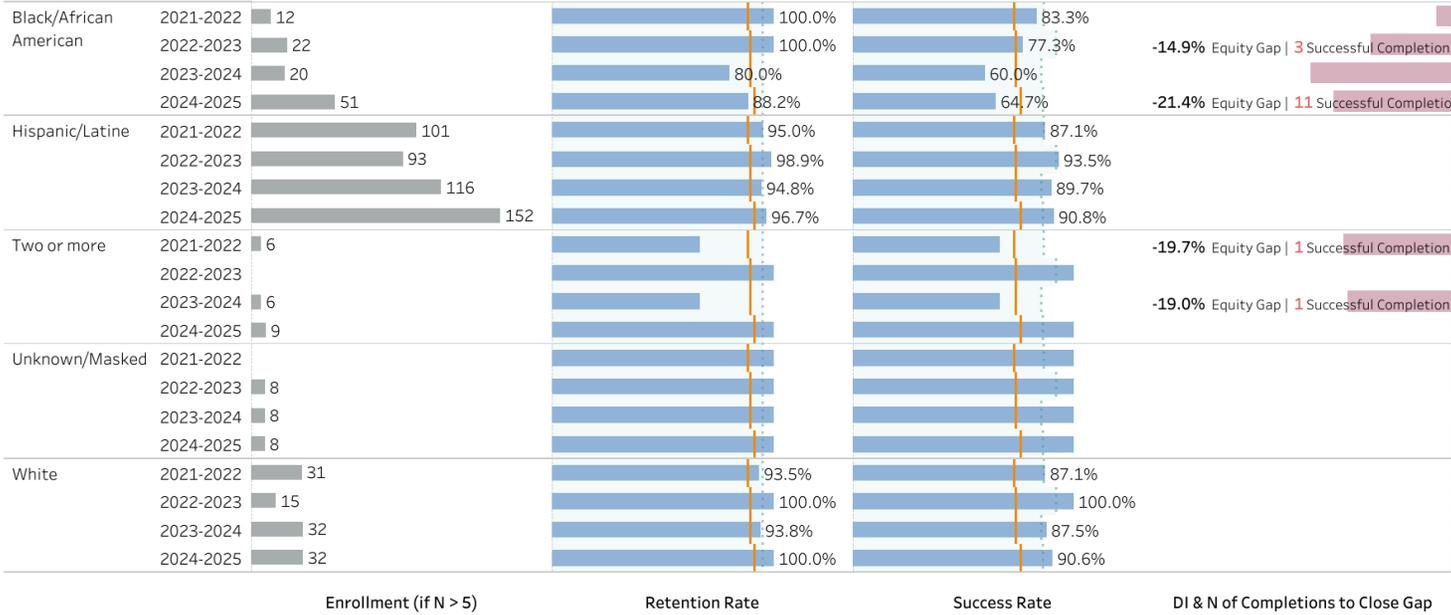
[Click for Fill Rates](#)

[Click for FTES](#)



AVC Total Retention and Success are shown in vertical | ERSC Success Rate is Green |
 When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the PPG methodology. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the subgroup enrollment by the size of the DI gap (i.e., the difference between the average rate and the subgroup rate).

ERSC Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



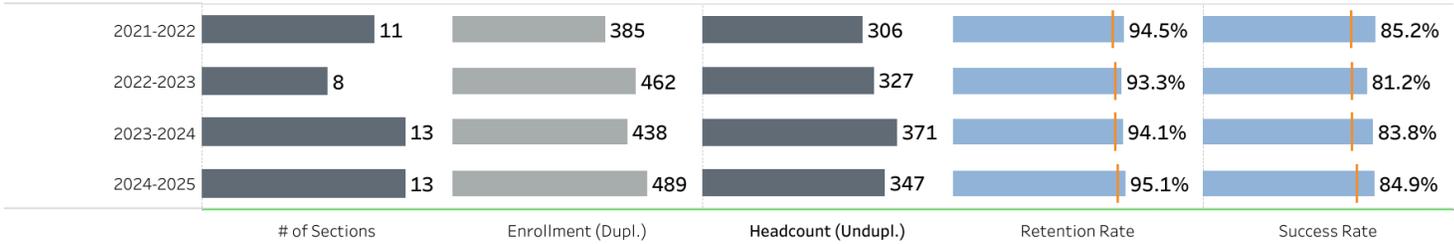
ERSC Enrollment, Retention & Success for by Gender (if greater than 5)



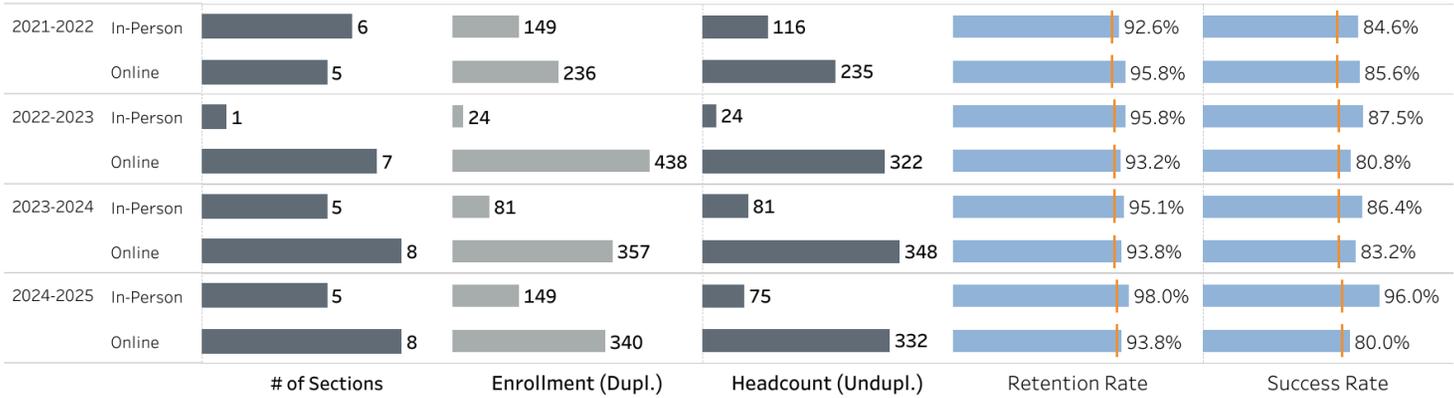
Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?

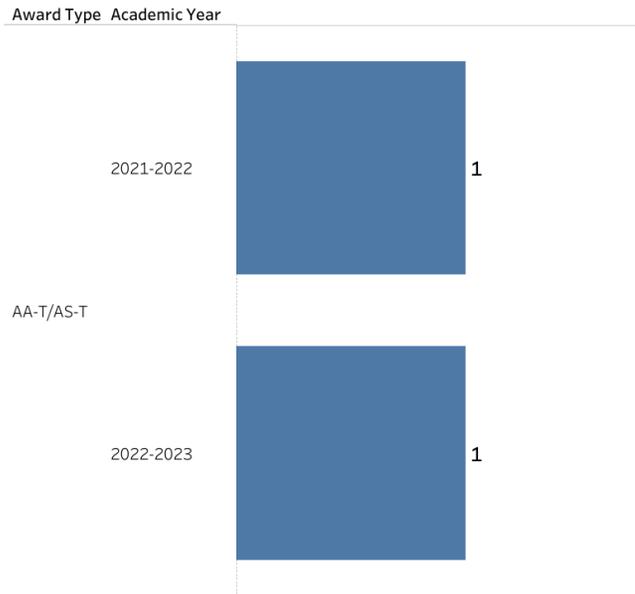
GEOL: Enrollments, # of Sections, Retention and Success



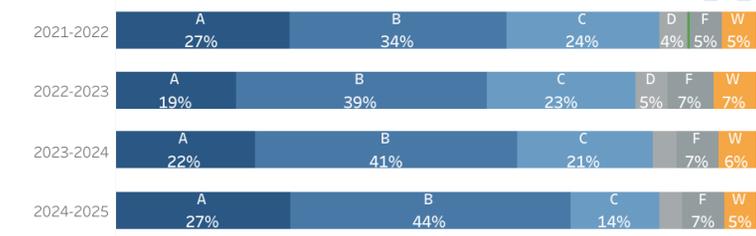
GEOL: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: AS-T Geology



Grade Distribution for GEOL



Classroom Teaching FTEF in GEOL

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Full-time FTEF	0.57	0.73	0.17	0.50	0.53
Overload FTEF	0.33		0.40	0.40	0.20
Grand Total	0.90	0.73	0.57	0.90	0.73
FTES	15.7	14.5	11.5	14.8	12.1
FTES/FTEF Ratio	17.5	19.8	20.4	16.5	16.5
WSCH/FTEF Ratio	524.0	595.3	612.4	494.2	494.8
WSCH	469.5	435.0	346.2	442.8	361.5



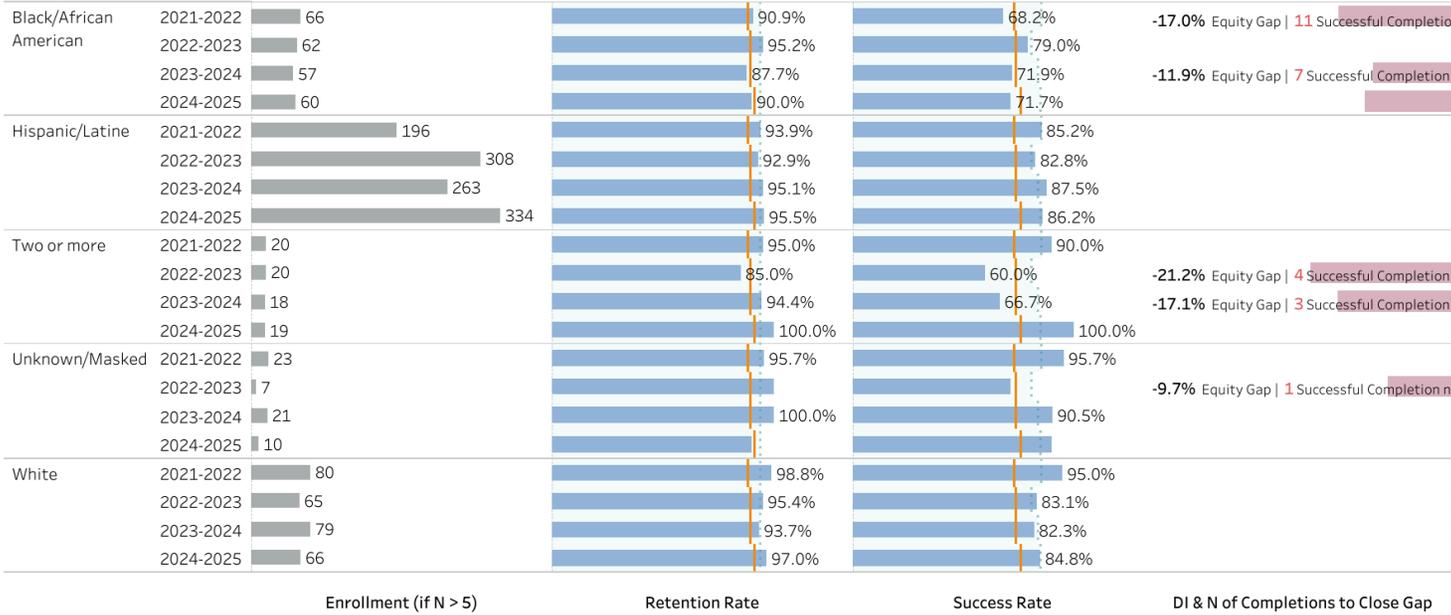
[Click for Fill Rates](#)

[Click for FTES](#)

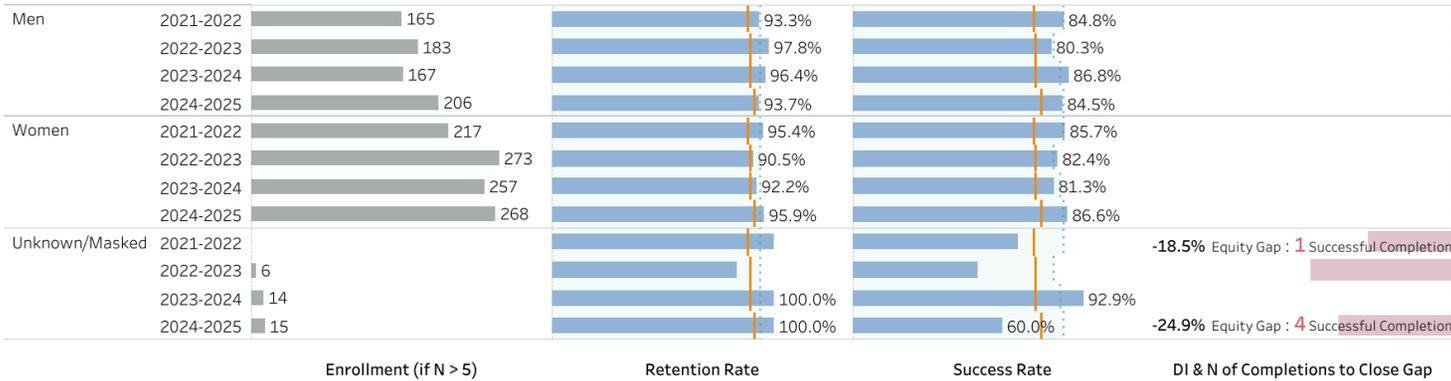


AVC Total Retention and Success are shown in vertical | **GEOL Success Rate is Green** |
 When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

GEOL Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



GEOL Enrollment, Retention & Success for by Gender (if greater than 5)



Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?



Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Science, & Engineering / Mathematics (MATH)	For Planning Years: 2026-2027
---	--------------------------------------

Name of person leading this review: Jane Bowers and Peter McLoughlin

Names of all participants in this review: Jane Bowers and Peter McLoughlin

Part 1. Program Overview: *Briefly describe how the program contributes to the district mission*

The Mathematics Department supports Antelope Valley College’s mission by providing high-quality, comprehensive instruction to a diverse population of learners. While few students pursue degrees specifically in mathematics, nearly all AVC programs require math coursework, making the department’s impact broad and essential to student success across the college.

Part 2A: Analyze the [program review data \(retrieval instructions\)](#), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the *Success & Retention* and *Program Award* data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the *Success & Retention* data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

Overall Analysis

The Mathematics Department continues to demonstrate strong performance in both retention and success rates. In 2024–2025, the overall **retention rate increased from 82.6% to 85.6%**, and the **success rate improved from 64.0% to 68.3%** — the highest levels in the past several years. Enrollment also rose from 6,612 to 7,198 duplicated enrollments, meaning that not only did a higher percentage of students persist and succeed, but the absolute number of successful math students reached its highest point in five years.

The data by modality show improvement across both formats:

- **In-person courses** rose from 76.9% to 83.1% retention and from 64.5% to 68.7% success.
- **Online courses** increased from 84.0% to 86.2% retention and from 61.8% to 66.9% success.

These gains suggest that both classroom-based and online math instruction are benefitting from departmental efforts to improve consistency, support, and engagement across modalities.

Award data also reflect positive momentum. **AS-T in Mathematics** degrees climbed from 48 in 2022–2023 to 53 in 2023–2024 and 56 in 2024–2025, while the **AA/AS Mathematics** degrees increased from 8 to 26 to 36 over the same period. This upward trend demonstrates that more students are completing mathematics pathways that lead directly to degree and transfer success.

Equity Analysis

Disaggregated success and retention data show overall improvement across nearly all student groups. Students identifying as Hispanic/Latino(a), White, and Asian/Pacific Islander achieved the highest success rates, each showing steady increases over the review period. Gender-based analysis indicates that **female students continue to outperform male students slightly** in both retention and success, though both groups improved.

The largest remaining gaps are observed among **African American students**, whose success and retention rates have remained relatively flat compared to other ethnic groups since 2021–2022. While these students are persisting at similar rates as before, their overall success rates still lag behind the departmental average by several percentage points. Continued focus on targeted academic support, embedded tutoring, and early alert outreach will be important to narrow this gap.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The full implementation of AB 705 and AB 1705 has eliminated prerequisite developmental courses, placing all students directly into transfer-level math. Many STEM-intending students continue to arrive underprepared for calculus-level rigor. To address this, the department has developed **Math 149 (Foundations of Calculus)** and **corequisite support for Math 150**, both launched in Fall 2025, to strengthen readiness and improve outcomes for students entering advanced coursework.

A key challenge impacting student success is **classroom infrastructure**. Effective STEM instruction requires continuous, unobstructed board space to model multi-step problems and derivations. Most rooms in Cedar and Sage Halls, with only 16 feet of partially blocked boards, limit instructional flow and are **not AB 1705-compliant**. In contrast, classrooms in T600 with 24-foot boards offer more suitable conditions for presenting multi-step problems and maintaining lesson flow. Additional details regarding required classroom upgrades are included in the *Resource Requests* section.

Another challenge affecting student success is the lack of qualified tutors in the Learning Center who can assist with **Math 110 (Math for Liberal Arts Students)**. Many students in this course struggle to find adequate on-campus help, as few tutors are familiar with the specific concepts and problem-solving approaches emphasized in Math 110. Because most sections are taught by adjunct faculty who hold limited office hours, students often lack access to timely academic support. Providing additional tutor training focused on Math 110 content would strengthen support for these students and help close equity gaps in this foundational general education course.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The Math Department aims to provide equitable and high-quality instruction that helps all students succeed in transfer-level math. Our goal is to improve success and retention rates for every student group through consistent course design (by developing common shell for Math 149 and Math 150 courses), targeted support (by developing co-requisite courses), and effective teaching practices. The department is continuing to develop shared Canvas materials for **Math 149 (Foundations of Calculus)** and **Math 150 with Support** to strengthen alignment and ensure students receive a consistent learning experience. Looking ahead, we hope to create modern, well-equipped classrooms and stronger tutoring support that gives students the resources they need to succeed, whether they are taking Math 110 or advanced STEM courses.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans** (CIPs) and progress toward meeting those plans.

Past Course Improvement Plans	Progress Made
Strengthen corequisite and student support structures	Support courses have been created for MATH 149, MATH 150
Enhance instructional consistency and communication	Canvas shells for MATH 149/049S and MATH 150/050S are created to share the course resources with faculty teaching those course
Increase access to technology and collaborative learning opportunities	Maintaining computer-lab classrooms for majority of MATH 115 (current STAT C1000)

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
Provide students with the necessary extra assistance during class time.	Expanded offerings of the corequisite courses in key math classes.
Increase the opportunities for professional development specifically targeted at disproportionately affected subgroups.	Faculty have participated in AB 1705 implementation workshops, and Faculty Learning Communities to strengthen inclusive teaching practices and support disproportionately impacted students.
Provide students with an appropriate learning environment that includes the necessary workspaces and technology to help make the transition to Calculus under the provision of AB 1705.	Continued use of computer labs for Math 115, temporary use of T600 classrooms with extended whiteboards, and ongoing advocacy for classroom upgrades are helping to create more effective instructional environments aligned with AB 1705 requirements.

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1	ILO 2. Creative, Critical, and Analytical Thinking	1,2			Goal #3 Resources: Increase student awareness about campus resources.	Strengthen in-class and out-of-class student support for transfer-level math courses.	1. Expand embedded and group tutoring, and targeted training for Learning Center tutors, especially for Math 110 and STAT C1000 (former Math 115).	Success rates increase across all demographic groups.

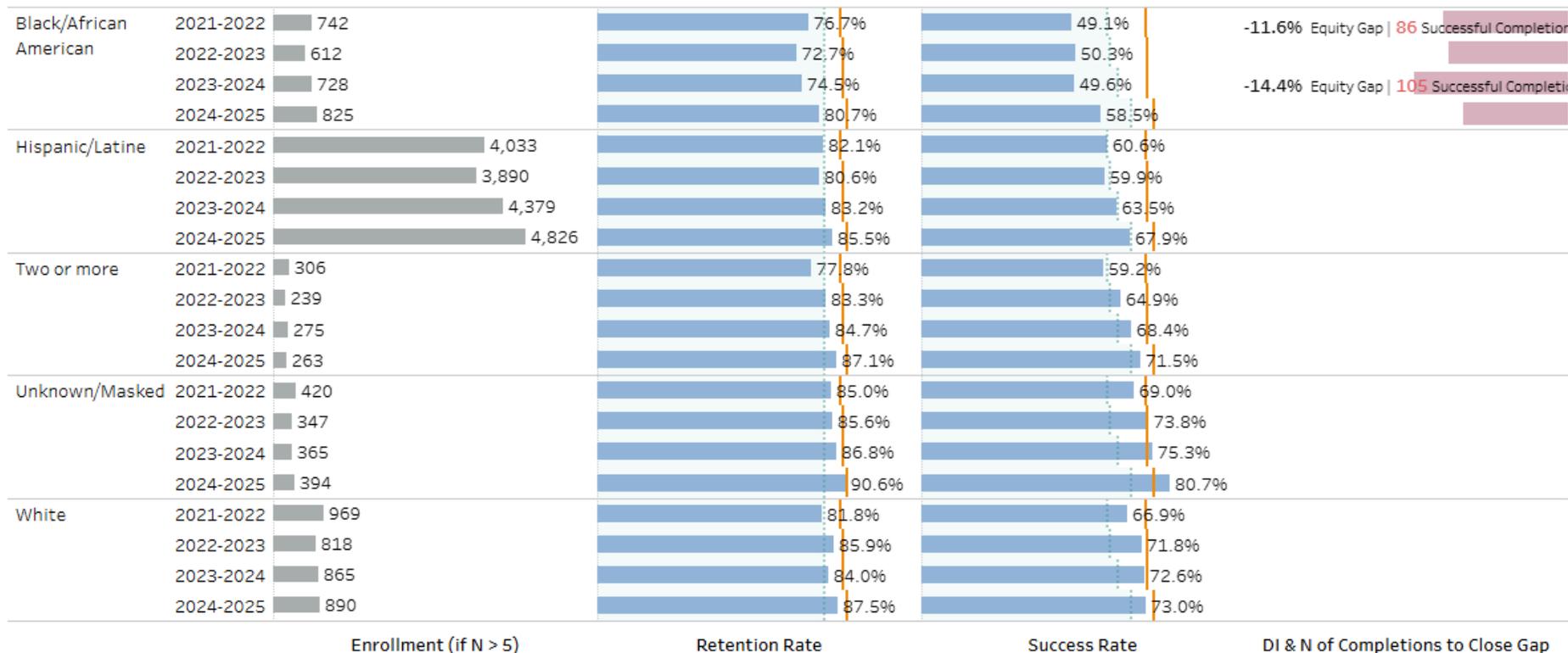
							2. Develop more co-requisite and noncredit courses.	
#2	ILO 2. Creative, Critical, and Analytical Thinking	1,2			Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Enhance professional development focused on equitable and effective instruction.	<ol style="list-style-type: none"> 1. Continue offering and participating in Faculty Learning Communities, and POCR/AB 1705 trainings that strengthen inclusive and accessible teaching practices. 2. Encourage faculty to share and apply effective strategies for incorporating technology to reduce equity gaps and improve learning outcomes. 3. Consider developing more OER resources for students. 	<ol style="list-style-type: none"> 1. Increase in math professional development activities. 2. Progress in closing equity gaps.
#3	ILO 2. Creative, Critical, and Analytical Thinking	1,2			Goal #6 Success: Boost success rates by prioritizing the student experience.	Improve classroom infrastructure to meet AB 1705 requirements and support active learning.	<ol style="list-style-type: none"> 1. Modify existing STEM classrooms (especially in Cedar and Sage Halls) to include at least 20 feet of unobstructed whiteboard space and move projector screens to room corners. 2. Design classroom layouts that support active and collaborative learning, including flexible furniture and adequate student workspace. 3. Design a curriculum that promotes a culture of active learning and student engagement. 4. Redesign SLOs for STAT C1000 to better measure student outcomes and ways to improve it. 	Increased student engagement and success rates.

Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)						
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Physical/Facilities	To sustain progress and ensure compliance, the department requests six upgraded classrooms by July 2027 to replace the T600 classrooms that will no longer be available after that date. Each classroom should include at least 20 feet of unobstructed writing space, repositioned projector screens, podiums and computers to avoid blocking boards, and flexible furniture to support collaborative, active learning. These facilities are essential for effective MATH instruction and for meeting AB 1705 requirements.	Goal #3	New	\$30,000	One-time	Peter McLoughlin, Jane Bowers
Supplies	Markers different colors, erasers, paper, pens (black, blue, red), whiteboard cleaner	Goal #3	Repeat	\$500	Recurring	Peter McLoughlin, Jane Bowers
Other	Funding for faculty who teach MATH 110 to train Learning Center tutors on a continuing basis.	Goal #2	New	\$15,000	Recurring	Peter McLoughlin, Jane Bowers
Professional development	Funding for attending relative conferences to learn innovative ways of teaching and how other colleges are adopting to AB 1705 and other state-related changes.	Goal #2	New	\$5,000	Recurring	Peter McLoughlin, Jane Bowers

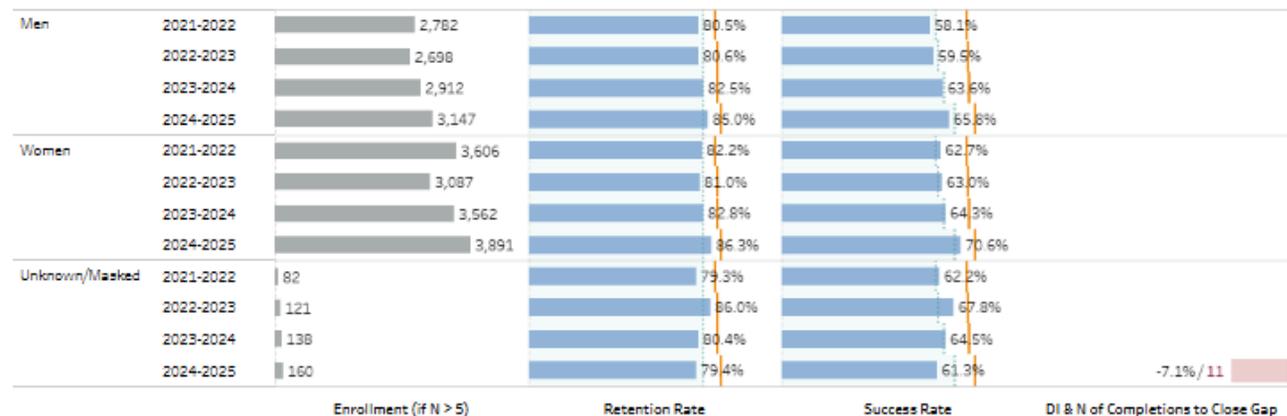
Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).
 Required:

- Enrollment tab
- Equity tab

MATH Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



MATH Enrollment, Retention & Success for by Gender (if greater than 5)



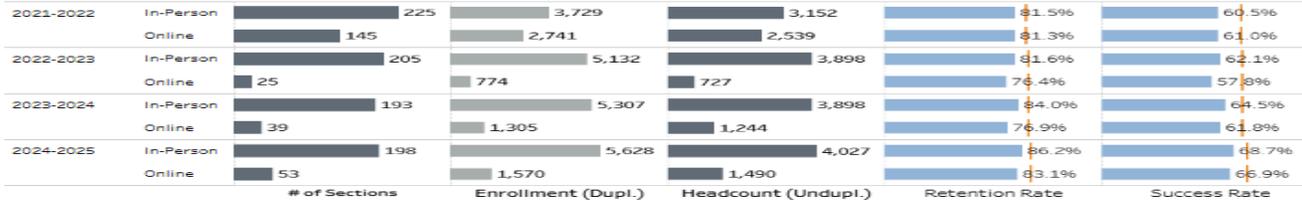
Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?

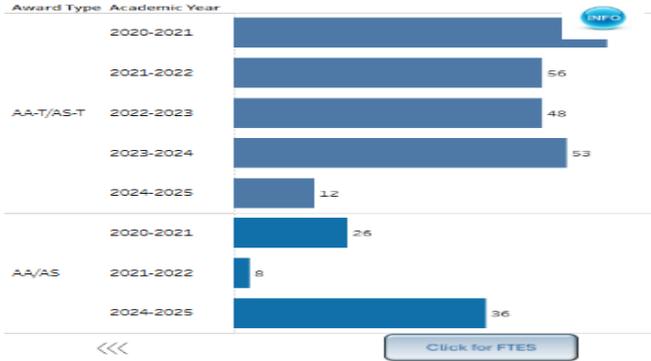
MATH : Enrollments, # of Sections, Retention and Success



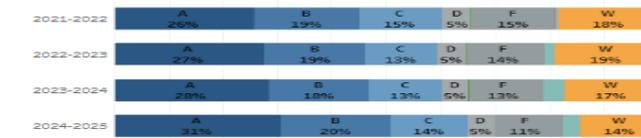
MATH: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: AS-T Mathematics & Mathematics

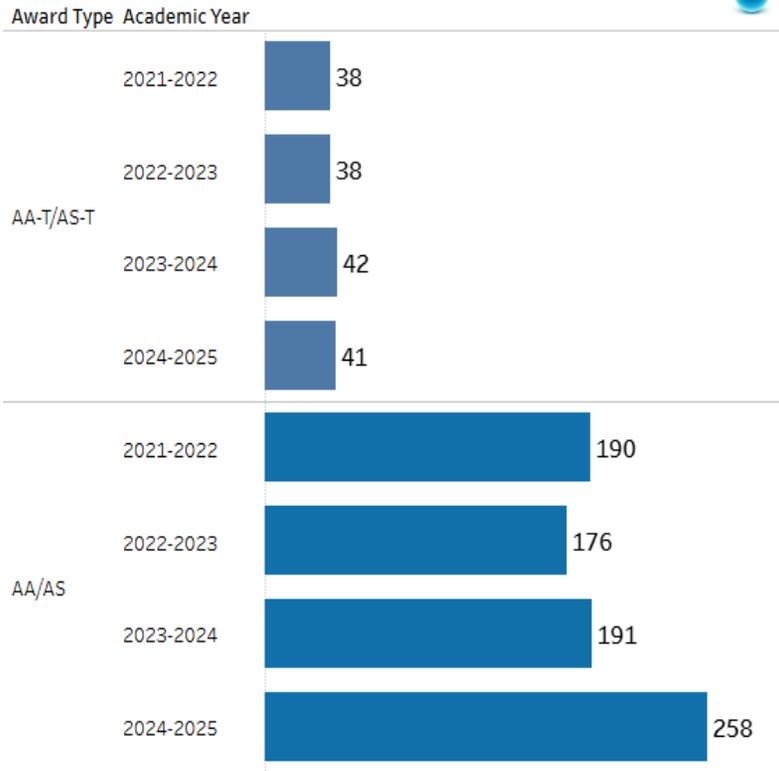


Grade Distribution for MATH

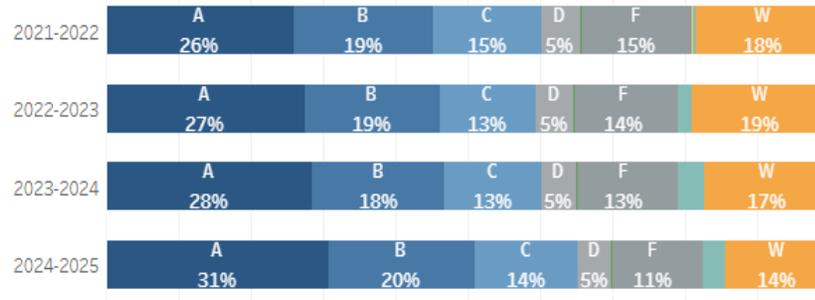


Classroom Teaching FTEF in MATH

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	9.72	6.28	4.60	5.30	9.13
Full-time FTEF	20.16	18.65	17.90	17.30	17.43
Overload FTEF	1.07	1.95	0.87	1.60	1.07
Grand Total	30.94	26.87	23.37	24.20	27.63
FTEF	449	353	328	362	394
FTEF/FTEF Ratio	15	13	14	15	14
WSCH/FTEF Ratio	435	394	421	449	428
WSCH	13,467	10,586	9,829	10,872	11,829



Grade Distribution for MATH



Classroom Teaching FTEF in MATH

Fall Terms ◀ ▶

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	9.72	6.28	4.60	5.30	9.13
Full-time FTEF	20.16	18.65	17.90	17.30	17.43
Overload FTEF	1.07	1.95	0.87	1.60	1.07
Grand Total	30.94	26.87	23.37	24.20	27.63
FTES	449	353	328	362	394
FTES/FTEF Ratio	15	13	14	15	14
WSCH/FTEF Ratio	435	394	421	449	428
WSCH	13,467	10,586	9,829	10,872	11,829

Overall Success and Retention



Year	Number of Sections	Enrollment	Headcount	Retention Rate	Success Rate
202150	526	9,753	5,212	90.6%	78.9%
202170	2,005	32,680	11,458	87.2%	70.8%
202230	1,306	29,085	10,253	87.6%	72.2%
202250	385	9,128	5,172	89.8%	77.2%
202270	1,413	35,018	12,171	88.6%	71.4%
202330	1,441	33,094	11,351	89.3%	73.5%
202350	426	10,925	5,928	91.5%	78.0%
202370	1,510	38,732	13,248	88.7%	71.4%
202430	1,511	37,004	12,476	88.7%	73.3%
202450	527	13,881	6,908	91.1%	72.1%
202470	1,635	43,951	13,960	89.9%	74.8%
202510	179	5,061	3,673	93.4%	83.4%
202530	1,607	44,078	13,552	90.4%	76.1%

Overall FTEF in Major Terms

Term Type

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024	Spring 2021	Spring 2022	Spring 2023	Spring 2024	Spring 2025
Part-time FTEF	175.06	158.70	147.88	153.14	169.78	144.31	128.00	148.91	160.70	175.71
Full-time FTEF	165.54	145.63	160.36	168.99	158.37	146.50	150.93	154.19	160.00	154.85
Overload FTEF	38.43	41.39	42.83	48.70	56.94	23.99	32.65	43.78	46.65	55.38
Grand Total	379.04	345.72	351.07	370.83	385.08	314.80	311.58	346.87	367.35	385.94

Program Awards | All

Program Awards

Award Type	2022-2023	2023-2024	2024-2025
AA-T/AS-T	734	640	306
AA/AS	1,172	1,292	1,988
Certificate	1,115	1,108	1,524
AVC Local Certificate	210	194	186
Non-Credit	38	64	70
Bachelor's	16	21	13
Grand Total	3,285	3,319	4,087



Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: MSE/Physics	For Planning Years: 2026-2027
--	--------------------------------------

Name of person leading this review: Dr. Jason Bowen
--

Names of all participants in this review: Dr. Chrysanthos Kyriakides, Dr. Mark McGovern
--

Part 1. Program Overview: Briefly describe how the program contributes to the district mission

The physics program at Antelope Valley College provides a rigorous and supportive environment for students pursuing studies in the physical sciences and related fields. The program serves a diverse student population and plays an essential role in preparing students for transfer to four-year universities in physics, engineering, and other STEM disciplines. It also provides foundational coursework for programs such as biology, chemistry, kinesiology, and airframe manufacturing.

The program emphasizes both conceptual understanding and quantitative reasoning through a combination of lecture and laboratory instruction. Faculty integrate demonstrations, modern laboratory equipment, and active learning strategies to engage students in the process of scientific inquiry. Participation in activities such as the STEM Club, MESA, Puente, and undergraduate research projects further supports the district’s mission by expanding access and promoting academic excellence among historically underrepresented students.

Physics faculty also contribute to broader institutional goals through collaboration in the development of the joint AVC/California State University Bakersfield Engineering Program and continued participation in the AVC Baccalaureate Program in Airframe Manufacturing Technology. The program’s emphasis on critical thinking, problem solving, and real-world application reflects the college’s commitment to student success and community advancement.

Part 2A: Analyze the [program review data \(retrieval instructions\)](#), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:

Use the following questions to guide your analysis:

Overall (Use the *Success & Retention* and *Program Award* data to inform your analysis)

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- What are the trends for the number of awards granted? Are the number of awards going up or down?

Equity (Use the *Success & Retention* data including S&R by Ethnicity and Gender data to inform your analysis)

- Which ethnic / gender student groups complete their courses at the highest rates?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)

The overall success rate for Physics in 2024–2025 is 82.2 percent and the retention rate is 89.3 percent. Both reflect steady and sustained improvement over the previous cycles, continuing the post-pandemic recovery that began in 2022–2023. Success rates have now exceeded the collegewide average for the third consecutive year, while retention has nearly reached parity with the institutional benchmark.

Enrollment rose to 1,032 duplicated enrollments and 351 unduplicated students across 19 sections. This represents the highest enrollment level in three years and demonstrates renewed student interest in the physical sciences and related transfer fields. The number of AS-T degrees in Physics increased from 19 to 29, reversing the prior year’s decline and marking the strongest completion year since before the pandemic.

Course outcomes indicate consistent academic rigor with clear evidence of learning. A strong majority of students complete their courses successfully, and the withdrawal rate has declined to approximately 11 percent. Student Learning Outcome assessments show that numerical problem solving (SLO 1) and conceptual understanding (SLO 2) remain strong across all course levels, with most courses meeting or exceeding performance targets.

Equity data show continuing progress in reducing performance gaps among historically underrepresented groups. African American students experienced a success rate of 72.2 percent and retention of 83.3 percent—up substantially from prior years though still below the overall program average by 9.9 percentage points. Hispanic/Latinx students, who represent the largest subgroup in the program, achieved success and retention rates of 79.4 and 86.7 percent respectively, both showing year-to-year improvement. Success rates for women rose to 81.4 percent and retention to 86.8 percent, narrowing the historical gap with male students whose rates are 82.0 and 90.7 percent.

These improvements reflect sustained faculty attention to engagement and support. The continued use of clickers, new demonstrations, and modern laboratory equipment has enhanced conceptual understanding and real-time feedback. Faculty participation in the STEM Club, undergraduate research projects, and Puente mentoring continues to strengthen student confidence and sense of belonging.

Overall, the program's steady increase in success, retention, enrollment, and degree completions demonstrates a return to stability and academic momentum. The data suggest that the instructional methods adopted in recent years—active learning, early intervention, and targeted outreach—are producing measurable and durable gains in student achievement.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

While the overall trajectory of the Physics program is positive, opportunities remain to strengthen student retention and close equity gaps among specific subgroups. The current retention rate of 89.3 percent is just below the collegewide average, suggesting that modest gains could bring the program to full parity with institutional benchmarks. Continued focus on early intervention for students struggling in the first third of the semester may help reduce withdrawals and improve persistence.

Equity data highlight areas for targeted improvement. African American students, though showing meaningful gains over the previous year, continue to experience a 9.9 percentage point success gap relative to the overall program average. Hispanic/Latinx students also remain slightly below the college average in both success and retention, even as their participation in the discipline continues to grow. Focused tutoring, mentorship, and structured study groups could provide additional academic and social support to these students.

Enrollment has rebounded to its highest level in three years, but the number of sections offered (19) remains slightly below pre-pandemic levels. Additional sections would allow for smaller class sizes in introductory courses and reduce waitlists that have reappeared in recent semesters. Sustaining this growth will require maintaining a consistent pool of adjunct faculty and ensuring reliable access to functioning laboratory equipment.

Another challenge is maintaining laboratory quality and engagement with limited resources. Some of the requested equipment in prior cycles only recently arrived, and its effectiveness in improving SLO outcomes has yet to be fully evaluated. Ongoing assessment of new demonstrations and real-time engagement tools will be necessary to confirm that these investments produce measurable benefits.

The most persistent challenge remains restoring pre-pandemic momentum in the face of continuing economic pressures that affect student persistence, particularly for working and first-generation students. The opportunity lies in building on the practices that have proven successful—

early contact with struggling students, active learning, and clear communication of available campus resources—to sustain the upward trend in success and degree completion.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

The Physics program's primary aspiration is to achieve parity in student performance across all demographic groups while sustaining the overall gains in success and retention that have been made since 2022. The program seeks to restore and exceed pre-pandemic enrollment and completion levels while maintaining a rigorous academic standard that prepares students for transfer and professional advancement in STEM fields.

A key goal is to continue building an inclusive and supportive learning community where students from all backgrounds can thrive. Faculty intend to expand mentoring through the STEM Club, MESA, and Puente programs, increasing the number of students who engage in research, outreach, and tutoring activities. These partnerships strengthen persistence and belonging, particularly among first-generation and historically underrepresented students.

The program also aims to strengthen its collaboration with the new joint AVC/California State University Bakersfield Engineering Program, ensuring a seamless transfer pathway for physics and engineering majors. Faculty plan to develop stronger connections between lower-division physics courses and applied engineering coursework so students can more clearly see the relevance of physics to future careers.

In the classroom, the aspiration is to deepen the use of evidence-based teaching practices such as active learning, peer instruction, and real-time feedback using clickers and demonstrations. The program plans to evaluate the new laboratory equipment acquired in 2024 and incorporate its use into updated lab manuals that emphasize hands-on experimentation and quantitative analysis.

Ultimately, the Physics program seeks to be recognized for its culture of excellence, inclusivity, and innovation—a program that not only transfers students successfully to four-year universities but also inspires them to pursue scientific discovery, engineering solutions, and teaching careers that serve the broader community.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Insert Advisory Committee Recommendations here (Please do not insert complete meeting minutes, but just recommendations from the advisory committee.)

Insert Labor Market Data here <https://www.labormarketinfo.edd.ca.gov/commcolleges/>

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past Course Improvement Plans (CIPs) and progress toward meeting those plans.

Past Course Improvement Plans	Progress Made
<p>All numerical application SLOs, "analyze and solve...", as well as all but one conceptual, "use appropriate terminology...", meet or exceed the standards. The students are tested rigorously throughout the semester and the material is delivered at an appropriate pace. The small size classes, and the easier access to the instructors, when compared to four-year universities, encourages the students to become more engaged and learn the material better. The students have the opportunity to meet their instructor in various ways, in person, via zoom or email. They are offered four exams each semester which gives the opportunity to assess their progress and take appropriate action. Additionally, through the use of clickers or color-coded index cards, we can evaluate their understanding and get feedback in real time. This allows for adapting the course according to the class needs. If the feedback from cards or clickers indicates the students are well versed on a particular subject we can move to the next. If not, we can spend more time until the feedback from clickers and card indicates they are ready to move to the next subject. The textbooks, the material taught, and the level it is taught is comparable to four-year universities.</p>	<p>The Physics program has maintained steady progress on the goals outlined in the prior Course Improvement Plans. The CIPs for 2022–2023 focused on reinforcing conceptual understanding while sustaining high performance in numerical problem solving across all course levels. Targets were set at 70 percent for both numerical and conceptual Student Learning Outcomes. Most SLOs met or exceeded this threshold in the 2022–2023 cycle. All numerical application SLOs (“analyze and solve...”) achieved or surpassed the target, with only PHYS 211 falling marginally below. Conceptual SLOs (“use appropriate terminology, mathematical language...”) also met expectations in all but PHYS 110 and PHYS 120, where slight shortfalls were observed. The small class sizes and direct instructor access have supported student engagement, and real-time feedback through clickers or color-coded cards continues to help address misconceptions promptly.</p>
<p>Even though, with the exception of physics 110, all students tested in concepts of physics, " use appropriate terminology, mathematical language....to effectively communicate the various concepts..." , meet the achievement target, they appear to perform not as well in concepts when compared to numerical applications, "Analyze and solve level appropriate problems,..". This problem is not unique to AVC, similar issues can be found in four-year universities as well. Through the use of clickers, students find their conventional, "common sense" understanding of concepts, challenged, the instructor acquires feedback in real time, and corrects the misconception of concepts. One such example, is the idea that positive acceleration means the object is speeding up. To challenge that notion, students are provided with a problem where the object is in fact slowed down with positive acceleration. Before they solve the problem, numerically, they are asked, through a multiple-choice clicker problem, to predict the sign of the acceleration. The students overwhelmingly choose negative acceleration. This sort of cognitive dissonance helps cement the concept that negative acceleration does not necessarily mean speeding up, or slowing down. When tested later on, in a reverse situation, the</p>	<p>Faculty noted that conceptual understanding remains the area of greatest opportunity for improvement, a pattern common to many institutions. Through clickers and in-class conceptual questions, students are encouraged to confront and correct misunderstandings as they arise. An example described in the plan illustrates this: students often assume that negative acceleration means slowing down. By using targeted clicker questions and examples that challenge this misconception, students later demonstrate improved conceptual understanding. Several interventions from the prior plan are now fully implemented. New laboratory equipment and lecture demonstrations, acquired in summer 2024, have been widely adopted and received positive feedback from both students and faculty. The equipment has improved reliability and allowed students to focus on data collection and analysis rather than troubleshooting. Its full impact on SLO outcomes will be</p>

<p>students predict the sign of the acceleration correctly. Peers now employ more conceptual questions in the homework assignments, in class worksheets, and of course our lab manual. That tests, and improves the students conceptual understanding. The recent acquisition of new demonstrations, that are used during lectures, creates enthusiasm and engagement by the students, regarding concepts of physics. One such demonstration is the conservation of angular momentum spinning stool. Further improvements will follow, so that all conceptual SLOs will meet the standards.</p>	<p>evaluated beginning in fall 2024, but early impressions are highly favorable.</p>
<p>We would like to continue improving our demonstration, laboratory equipment, and other tools that have proven effective in improving our student's success. A more recent series of vernier lab equipment allows for the sensors to be connected wirelessly via Bluetooth. This flexibility gives the student the ability to do more and eliminates mistakes from wires tangling the sensors. Preliminary cost of this equipment is at \$10,000. The current power supplies are failing, a year of two after their purchase. New better power supplies will be needed. Research grade power supplies have been identified. Those power supplies come with a warranty of up to five years. This will cost approximately \$15,000. A cost that may sound high initially but will more than pay for itself given that we will not to replace power supplies every year or two. Finally, a healthy budget for other lab equipment and demonstrations, including a four-channel oscilloscope, of about \$10,000</p>	<p>Faculty workloads remain heavy, and all current full-time instructors carry significant overload assignments. This limits the number of additional sections that can be offered despite strong student demand. The addition of a new full-time faculty position remains an urgent need to support SLO assessment, expand course offerings, and sustain improvements in laboratory instruction. Overall, the program has made meaningful progress in sustaining strong performance in problem solving, improving conceptual learning through active feedback methods, and modernizing lab instruction. The next cycle will evaluate the measurable effects of the new equipment and continue refining methods to enhance conceptual mastery and engagement.</p>

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
<p>Increase student retention rates to pre-pandemic levels</p>	<p>Retention has continued to improve for a third consecutive year, rising from 85.7 percent in 2022–2023 to 88.1 percent in 2023–2024 and 89.3 percent in 2024–2025. The program is now within one percentage point of pre-pandemic levels and nearly identical to the institutional average. The use of clickers and group-based problem solving has helped reduce withdrawals by allowing instructors to identify and address misunderstandings in real time. The modest remaining gap can likely be closed through early-semester outreach to students at risk of falling behind and sustained emphasis on tutoring and resource awareness.</p>
<p>Increase student success rates to pre-pandemic levels</p>	<p>The success rate for 2024–2025 stands at 82.2 percent, exceeding both the collegewide average and the prior two cycles (79.2 and 81.2 percent). This steady improvement reflects the benefit of active learning, stronger in-class engagement, and improved laboratory reliability. Faculty continue to</p>

	emphasize conceptual reasoning alongside quantitative skills, a balance that has proven effective in supporting student achievement. Continued focus on conceptual mastery and problem-solving strategies should help maintain these gains.
Increase the number of AS-T Physics degrees to pre-pandemic levels	The number of AS-T Physics degrees awarded increased from 19 in 2023–2024 to 29 in 2024–2025, marking a significant recovery and the highest total in several years. This upward trend reverses earlier declines and suggests that recent improvements in retention, success, and course scheduling are translating into greater program completion. Ongoing coordination with counseling, MESA, and the STEM Center will help maintain this positive trajectory.
Increase enrollment and sections offered, particularly through outreach and the joint AVC/CSUB Engineering partnership	Enrollment has grown to 1,032 duplicated enrollments and 351 unduplicated students across 19 sections. Demand remains high, with sections filling quickly and waitlists reappearing. Continued collaboration with the CSUB Engineering partnership and campus outreach efforts will be essential to sustaining this momentum. The addition of a full-time faculty member remains a priority to manage workload, maintain program quality, and expand course availability to meet student demand.

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1	ILO 1. Communication				Goal #3 Resources: Increase student awareness about campus resources.	Increase student retention and success through proactive communication and early intervention.	(1) Explain during the first week the academic challenges students may face and the resources available to help them succeed. (2) Encourage open dialogue and use of anonymous feedback tools such as clickers or surveys to identify concerns early. (3) Refer students to campus tutoring, counseling, and MESA resources as soon as difficulties arise.	Improvement in course-level retention rates and midterm survey responses showing increased awareness of available support services.
#2	ILO 2. Creative, Critical,				Goal #1 Service: Realign college policies,	Increase student success rates by identifying and	(1) Monitor exam, homework, and lab	Sustained increase in course success rates to above 83

	and Analytical Thinking				practices, and processes to remove barriers and to become more effective, efficient, and responsive to students, employees, and the community.	assisting at-risk students early in the semester.	performance to identify students who may need support. (2) Schedule individual meetings to discuss obstacles and develop a plan that includes tutoring, regular office hour visits, and additional practice problems. (3) Share progress among faculty to identify consistent challenges across course levels.	percent overall, and measurable narrowing of equity gaps.
#3	ILO 4. Career and Specialized Knowledge				Goal #5 Education: Expansion of offerings and effective course scheduling.	Increase the number of AS-T degrees awarded and maintain steady enrollment growth through efficient scheduling and faculty availability.	(1) Work with division leadership to identify high-demand time slots for introductory courses. (2) Add sections as additional faculty become available. (3) Promote the Physics AS-T pathway and the joint AVC/CSUB Engineering Program through counseling and campus outreach.	Award of at least 30 AS-T Physics degrees annually and continued enrollment growth in PHYS 101 and 110.
#4	ILO 3. Community /Global Consciousness				Goal #6 Success: Boost success rates by prioritizing the student experience.	Strengthen student engagement and community connections through participation in STEM initiatives and partnerships.	(1) Increase student participation in the STEM Club, MESA, and Puente. (2) Promote research, internships, and outreach tied to physics and engineering. (3) Collaborate with CSUB faculty on guest lectures and mentoring opportunities. Measure of success: Growth in student participation in STEM-related activities and surveys indicating stronger connection between classroom learning and professional goals.	Growth in student participation in STEM-related activities and surveys indicating stronger connection between classroom learning and professional goals.

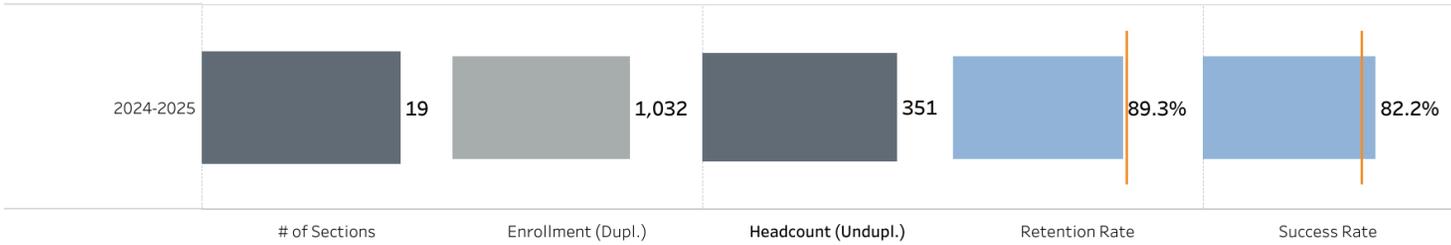
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)

Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Faculty	Hire one additional full-time physics instructor to support increasing enrollment, reduce faculty overload, and sustain consistent course offerings. Current faculty routinely teach above the contractual 15 LHE load, limiting capacity for new sections and SLO assessment. A new position would allow expansion of lower-division courses and strengthen the AS-T transfer pathway.	2, 3, and 4	Repeat	\$250,000	Recurring	Dr. Jason Bowen
Faculty	Provide stable funding to maintain adjunct coverage for lab and lecture sections as enrollment continues to grow. This ensures adequate section availability and flexibility in scheduling for students completing transfer requirements.	2, 3, and 4	Repeat	\$100,000	Recurring	Dr. Jason Bowen
Technology	Expand the inventory of reliable, modern lab equipment and add additional lecture demonstrations. Newly acquired equipment in 2024 has significantly improved data accuracy and reduced troubleshooting time. Additional units are needed to serve more students and reduce lab group sizes, improving engagement and safety.	1, 2, 3, and 4	New	\$9,750	One-time	Dr. Jason Bowen
Other	Fund outreach and engagement activities that promote the Physics AS-T program, the joint AVC/CSUB Engineering partnership, and participation in the STEM Club and MESA. Stipends would support faculty involvement in events, high school outreach, and mentoring that connect students to physics and engineering careers.	1, 2, 3, and 4	Repeat	\$10000	Recurring	Dr. Jason Bowen
Professional development	Provide funding for faculty to attend state and national physics and STEM education conferences. Participation strengthens instructional practice, supports curriculum development, and enhances the department's capacity to adopt evidence-based teaching methods.	2 and 4	Repeat	\$10,000	Recurring	Dr. Jason Bowen

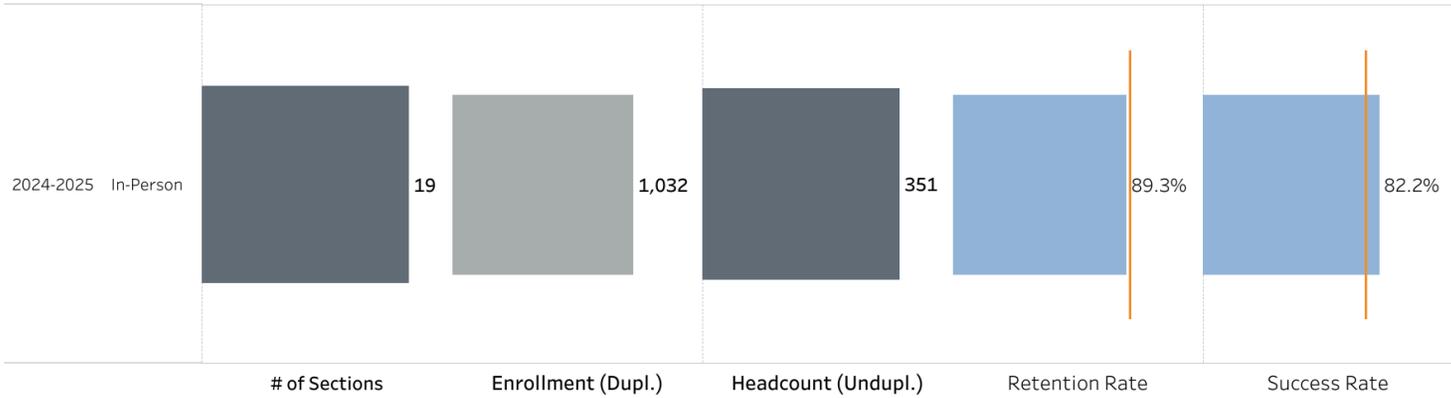
**Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).
Required:**

- Enrollment tab
- Equity tab

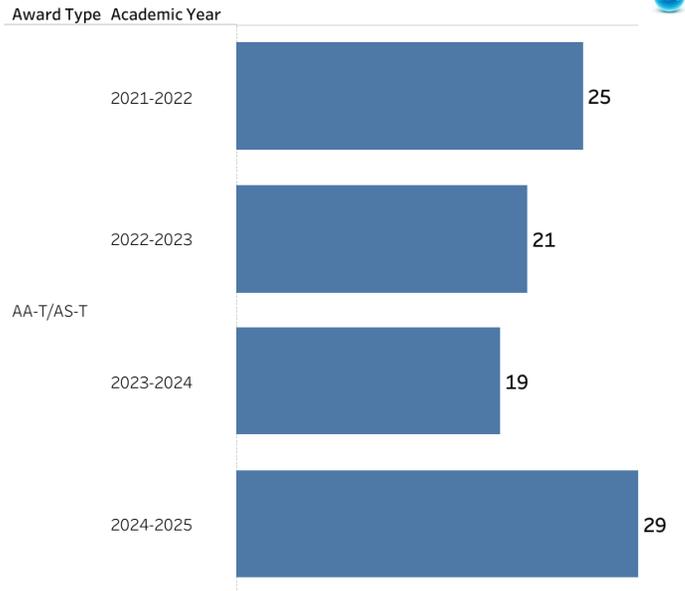
PHYS : Enrollments, # of Sections, Retention and Success



PHYS: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: AS-T Physics



Grade Distribution for PHYS



Classroom Teaching FTEF in PHYS

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	0.40	0.40	0.40	0.80	
Full-time FTEF	2.93	2.40	1.60	2.80	2.27
Overload FTEF	0.80	0.80	1.60	0.80	1.20
Grand Total	4.13	3.60	3.60	4.40	3.47
FTES	55	43	44	49	46
FTES/FTEF Ratio	13	12	12	11	13
WSCH/FTEF Ratio	400	359	369	332	397
WSCH	1,652	1,293	1,327	1,459	1,376



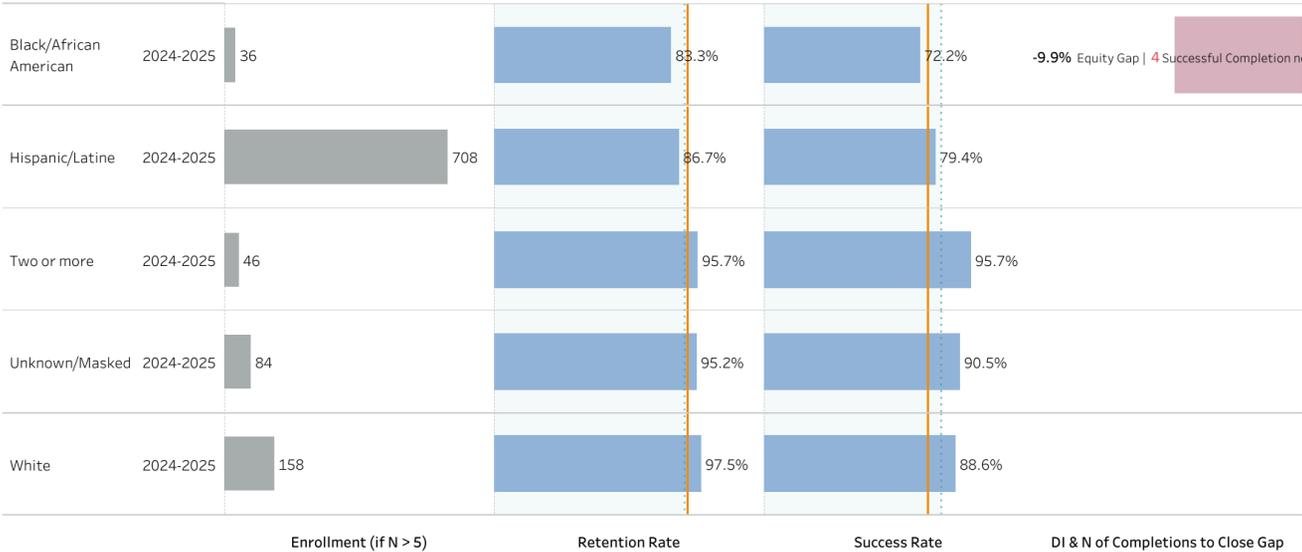
[Click for Fill Rates](#)

[Click for FTES](#)



AVC Total Retention and Success are shown in vertical | **PHYS Success Rate is Green** |
 When the success rate for a subgroup is **at least 3 percentage points lower** than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.
 To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

PHYS Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



PHYS Enrollment, Retention & Success for by Gender (if greater than 5)



Guiding Questions for Reviewing DI Data:

- ☒ What patterns or trends in the DI data suggest inequities among different student groups?
- ☒ What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- ☒ What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- ☒ How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- ☒ What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?





Fall 2025 Program Review Report | Instructional Areas

Division/Area Name: Mathematics, Science & Engineering / Physical Science (PSCI)	For Planning Years: 2026-2027
Name of person leading this review: Mark McGovern	
Names of all participants in this review: Mark McGovern	
Part 1. Program Overview: <i>Briefly describe how the program contributes to the district mission</i>	
Physical Science courses provide students at AVC with quality science education within a positive and inclusive learning environment dedicated to developing students' understanding and appreciation of the relevance of the physical sciences. PSCI 101 is a general education course that combines physics and chemistry content and is mainly geared towards students who intend to become K-12 teachers. The curriculum includes a hands-on active-learning laboratory component designed to improve students' conceptual understanding and problem-solving ability. The PSCI 302 course has been designed to meet the needs of the AVC 4-year airframe manufacturing technology program. It is a required class that introduces students to a non-calculus quantitative understanding of the atmosphere through the study of atmospheric thermodynamics and dynamics.	

Part 2A: Analyze the program review data (retrieval instructions), including equity data and any internal/external environmental scan information (e.g., surveys, interviews, focus groups, advisory groups, licensure exam scores, & job placement) to identify the program Strengths, Opportunities & Aspirations:
Use the following questions to guide your analysis:
Overall (Use the <i>Success & Retention</i> and <i>Program Award</i> data to inform your analysis) <ul style="list-style-type: none"> • What are the success and retention rates for your discipline? Did they decrease or increase in the last year? • What are the trends for the number of awards granted? Are the number of awards going up or down? Equity (Use the <i>Success & Retention</i> data including S&R by Ethnicity and Gender data to inform your analysis) <ul style="list-style-type: none"> • Which ethnic / gender student groups complete their courses at the highest rates? • Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the <i>Strengths and Accomplishments</i> section.
Strengths and Accomplishments: (Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)
Retention rates over the last four years of data have remained high (94.5% on average). Success rates have dropped a few percentage points in the previous couple of years (87% on average). Regardless, the program has remained well above the college's average retention and success rates. There are currently no physics science programs; however, students can take PSCI courses to satisfy the requirements for a Liberal Arts: Math and Science degree. The rates of completion for the LA: Math and Science degree have increased by a little more than 25% this past academic year.
Regarding gender equity data for men, success and retention rates have remained steady from previous years (97% and 91% respectively). For women, success and retention rates have increased a few points from previous years (94% and 85% respectively). Both are well above the college average.
Regarding race/ethnicity equity data, the majority of PSCI students are categorized as 'Hispanic/Latine', and their retention (95%) and success (86%) rates have remained high and are well above the college average. Rates for 'White' and 'Two or more' categories have also remained high and above the college average.
Enrollment for all courses offered in the program has remained high even though the number of course offerings has decreased.

Students completing PSCI 302 are moving toward their goal of a bachelor's degree in AVC's 4-year airframe manufacturing technology program. The discipline is proud to support this program. It was identified a couple of years back that textbook materials were insufficient to meet the educational needs of the students and made student engagement difficult. They have been replaced over time by AVC faculty writing their own labs and lecture materials. Discipline faculty attribute much of their success to the high-quality custom material being developed for our students.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Discipline faculty have had a difficult time finding a permanent full-time instructor for physical science, as our previous one moved to a different state. The division hired a full-time temporary instructor a few years ago, but they sadly passed away about a year ago, and a replacement has yet to be discovered. As a result, the department had to lower the number of PSCI 101 classes as discipline faculty could not fill the instructional vacancy. A recent call to hire faculty for this position was fruitless. A new call will be made this year to hopefully fill the full-time vacancy. Furthermore, an adjunct who is currently teaching a section of PSCI 101 will be retiring at the end of this coming academic year.

Over the past several years, the discipline has seen low success rates for African American/Black groups, which sit significantly lower than the college average. Additionally, discipline faculty saw retention rates have dropped around the same period. While the number of students in this data set is low, the faculty wants to see these rates increase and will review instructional material and methods to ensure that discipline faculty provides an equitable educational experience for all students. This past academic year, the number of African American/Black students has been too low to track any meaningful changes. Additionally, faculty professional development training on equity in education will be a valuable resource that discipline faculty hope can help us close these gaps.

Enrollment has dropped over the last four years, with the most notable drop being a year ago. Discipline faculty saw enrollments go down by more than half from the numbers they had three years ago. A major challenge that discipline faculty face is finding instructional support to allow enrollment numbers to increase.

The presence of a full-time physical science lab technician has been essential for the continued success of the area by maintaining current equipment and purchasing new equipment. Discipline faculty would like to see a permanent lab technician at the Palmdale campus so that they can properly support instruction there. Discipline faculty desire to provide students with the most up-to-date equipment and technology and improve the quality of laboratory exercises to maintain the high levels of student success that they are currently seeing.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

Discipline faculty are looking to increase our presence at the Palmdale campus. A fully equipped lab at the Palmdale campus is available, but enrollment has been consistently low or not available. Additionally, discipline faculty aspire to properly identify and close all equity gaps among our students.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

☒ N/A

The physical science discipline does not have an Advisory Committee. The satisfaction of students surveyed in our classes during the past academic year revealed that the majority felt somewhat or very satisfied with the content of the courses.

The labor market data related to the physical science curriculum of PSCI 101 falls under the category of Education, General (CIP 130101); Education Teachers, Postsecondary. It is estimated that there are approximately 5,050 job openings annually in Los Angeles County. The labor market data related to the physical science curriculum of PSCI 302 falls under three categories (TOP code 1930.00): Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary; Geoscientists, Except Hydrologists and Geographers; and Natural Science Managers. It is estimated that there are approximately 1,690, 3,720, and 11,650 annual job openings, respectively, in Los Angeles County.

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans** (CIPs) and progress toward meeting those plans.

Past Course Improvement Plans	Progress Made
<p>PSCI 101 Maintaining High Achievements - The performance on SLO 1 and SLO 2 was target met or exceeded with a 90% rate for both. Discipline faculty will continue to monitor the performance and make sure discipline faculty have enough instructional support and modern laboratory equipment to maintain these results.</p>	<p>Discipline faculty did not record SLO data for the past academic year so the previous year CIPs will be used. A couple of years ago, a new assessment was introduced to students as faculty felt that the previous one may not have been reflective of the true success of the students. The result continued to remain positive with the new assessment. The lab and lecture materials provide good information that is taught effectively and applied by the students. The hands-on labs and learning experiences with the current equipment seem to be working and helping the students to comprehend these basic physics processes. There seems to be no need for any drastic change as the data shows the excellent achievement of the SLO. Discipline faculty will continue to monitor the performance and make sure discipline faculty have enough instructional support and modern laboratory equipment to maintain these results.</p>
<p>PSCI 302 Maintaining High Achievements - Only one year of data is available to analyze, which is not enough time to witness any significant trends. Faculty will review the current assessment tool and make changes as needed to ensure proper assessments of student learning are occurring.</p>	<p>Discipline faculty did not record SLO data for the past academic year so the previous year CIPs will be used. While the results from the past academic year were excellent, there has been only one year of data to look at, which is not enough time to document trends. A couple more years of data collection with the current assessment tool will need to occur before any proper conclusion can be drawn.</p>

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past Goal	Progress Made
-----------	---------------

#1 – Increase offerings	Due to the lack of full-time faculty in the discipline and the sparse number of adjunct faculty available to teaching sections, the division has not been able to
	increase enrollment. There is no current job announcement open to cover a full time PSCI position however, a new physics position has been announced and the hope is the new faculty member can cover PSCI with some of their load.
#2 – Full time Instructor	No progress has been made this past year.
#3 – Laboratory Quality	For this goal, discipline faculty were looking to improve the quality of activities used for instruction. Adjunct faculty in the discipline were consulted and in combination with SLO data from PSCI 101 several changes were made to the material and additional equipment was obtained to enhance current activities. Future SLO data will reveal if these changes were successful.

Part 3: Based on Part 2 above, please list program/area goals:								
Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1 - Increase course offerings	ILO 1. Communication		ALL		Goal #5 Education: Expansion of offerings and effective course scheduling.	Increase the number of sections of PSCI 101 offered at both the Lancaster and Palmdale campuses to increase student enrollment.	Ensure discipline faculty have enough instructional support to offer additional sections through both full-time and adjunct hires. Also, make sure the Palmdale campus is fully capable of supporting lab activities.	The number of sections and therefore overall enrollment numbers will increase. This will be achieved by the successful hire of a full-time faculty member in physical science and potentially additional adjunct faculty members.
#2 - Improve the quality of laboratory equipment and activities	ILO 2. Creative, Critical, and Analytical Thinking		ALL		Goal #6 Success: Boost success rates by prioritizing the student experience.	Improve the quality of laboratory equipment used in the activities used to teach physical science to improve the educational experience of students.	Identify outdated equipment and find suitable replacements. Additionally, check current distributors of lab equipment and determine if any new would help support the instructional goals of the discipline.	Acquisition and implementation of new equipment. Discipline faculty will look to see that SLOs targets remain at their current high level or even improve.

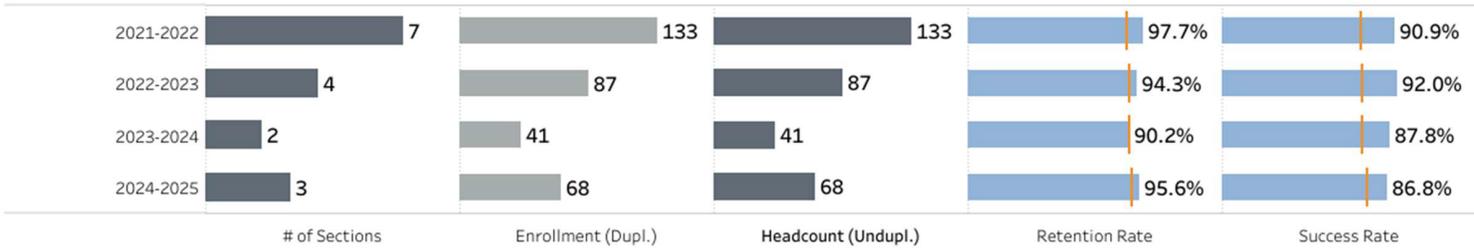
Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)						
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name
Faculty	Hire a full-time faculty member and additional adjunct faculty as needed	#1	Repeat	\$65,000 - \$80,000	One-time	Jedidiah Lobos (Dean), Mike Pesses (Chair)
Physical/Facilities	Have room darkening window blinds installed in PSCI room UH239	#2	Repeat	Unsure	One-time	Jedidiah Lobos (Dean), Mike Pesses (Chair)
Supplies	On-going budget to upgrade, replace, and acquire new equipment for the labs and demonstrations.	#2	Repeat	\$10,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair), David Bermea (Lab Tech)
Professional development	Budget to attend national conferences where research and teaching ideas are shared.	#2	Repeat	\$4,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair)

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).

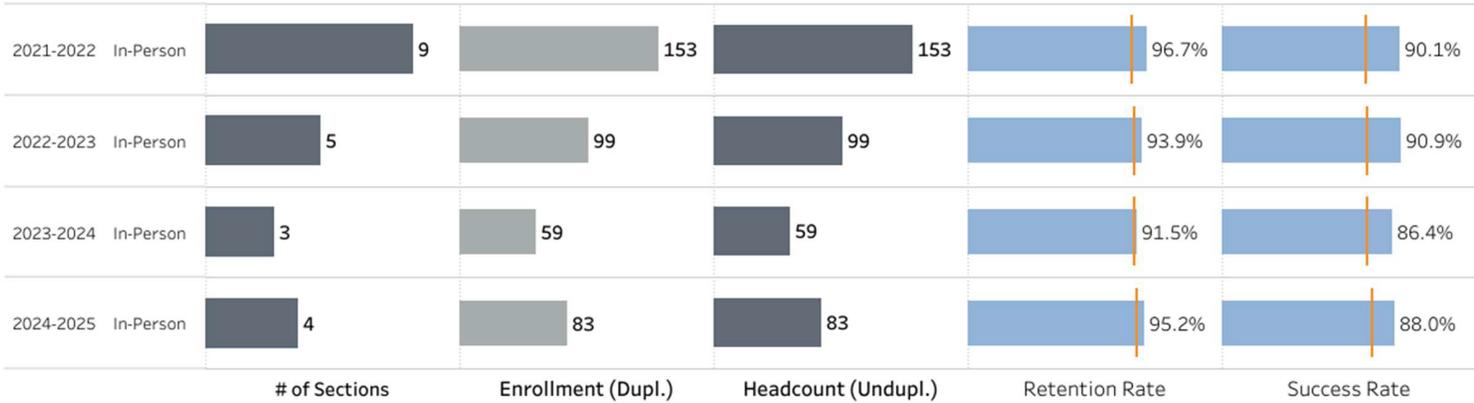
Required:

- Enrollment tab
- Equity tab

PSCI : Enrollments, # of Sections, Retention and Success

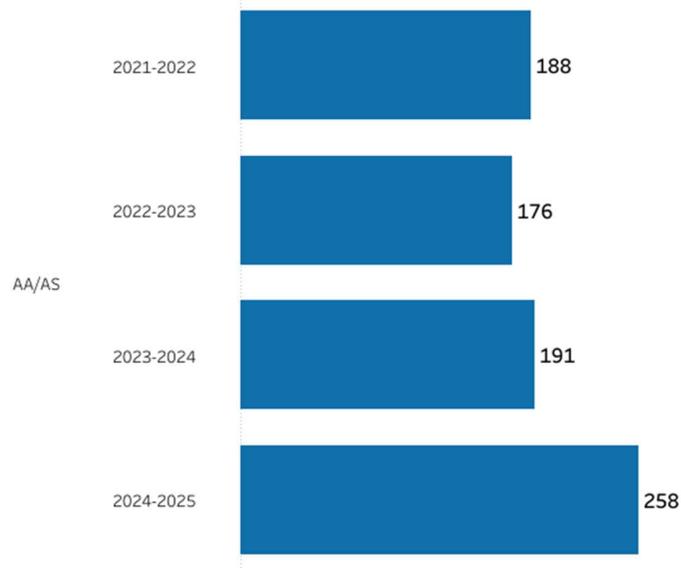


PSCI: Enrollments, Number of Sections, Retention and Success by Modality

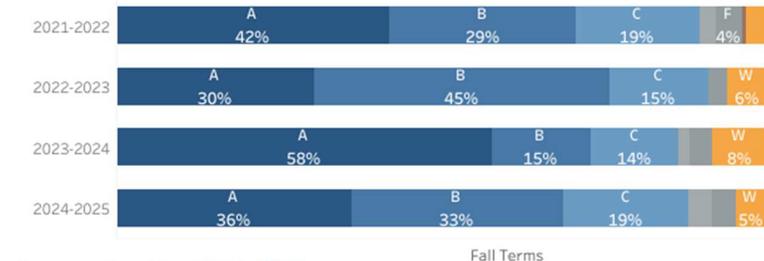


Program Awards: [LAS: Math and Sciences](#)

Award Type Academic Year



Grade Distribution for PSCI



Classroom Teaching FTEF in PSCI

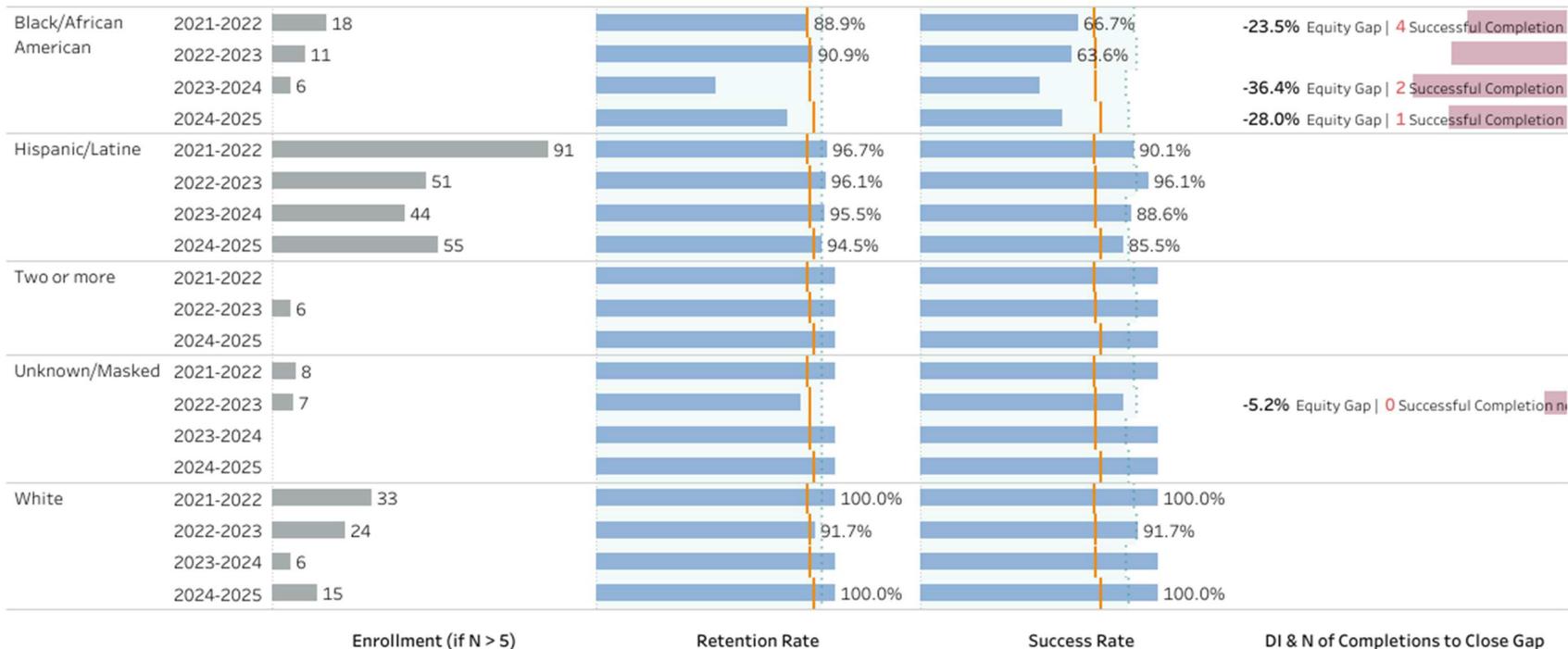
	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	1.00	0.20	0.60	0.20	0.60
Full-time FTEF	0.80	0.80			
Overload FTEF		0.40			
Grand Total	1.80	1.40	0.60	0.20	0.60
FTES	20.1	13.9	6.3	1.6	7.0
FTES/FTEF Ratio	11.2	9.9	10.5	7.8	11.6
WSCH/FTEF Ratio	335.0	297.6	316.0	232.5	347.5
WSCH	603.0	416.7	189.6	46.5	208.5

AVC Total Retention and Success are shown in vertical | PSCI Success Rate is Green |

When the success rate for a subgroup is at least 3 percentage points lower than the overall average success rate for the selected subject, that subgroup is considered to be experiencing Disproportionate Impact (DI) under the PPG methodology. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender.

To estimate the number of additional successful completers needed to close the equity gap, multiply the subgroup enrollment by the size of the DI gap (i.e., the difference between the average rate and the subgroup rate).

PSCI Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



PSCI Enrollment, Retention & Success for by Gender (if greater than 5)





Division/Area Name: Mathematics, Science, & Engineering / Water Distribution and Treatment Operations (WDTO)	For Planning Years: 2026-2027
Name of person leading this review: Jedidiah Lobos	
Names of all participants in this review: Jedidiah Lobos	

Fall 2025 Program Review Report | Instructional Areas

Part 1. Program Overview: *Briefly describe how the program contributes to the district mission*

The Water Treatment classes are a unique set of classes that were developed by and offered at the request of the local water agency with the single goal of preparing students for the state licensing test. The curriculum was developed and is taught by two local water specialists who are employed by the water agency and are qualified to be adjuncts at AVC.

Part 2A: Analyze the [program review data \(retrieval instructions\)](#), including equity data and any internal/external environmental scan information (e.g., surveys,

Use the following questions to guide your analysis:

- What are the success and retention rates for your discipline? Did they decrease or increase in the last year?
- Which ethnic / gender student groups experience the largest gaps when compared to the highest-performing group? Analyze the trends across the last review period. If no equity gaps are present, please reflect on the strategies that are working in the *Strengths and Accomplishments* section.

Strengths and Accomplishments: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

By taking only three classes the students can prepare for various grade-level water treatment and or distribution examinations administered by the California Water Resources Control Board. Certifications are required by the Safe Drinking Water Act for anyone that operates distribution and/or treatment systems that may affect water quality. Generally, this applies to all field employees other than entry-level positions.

Opportunities and Challenges: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

As our population in Southern California increases, the demand for water service also continues to increase. At the same time our population ages, the rate of retirements has increased. This, in turn, has dramatically increased the demand for labor in the water utility fields. The classes are not well advertised, mainly passing by word of mouth at the local water agencies, and it can benefit from full time faculty supervision. Advertising directly to local water agencies via an email list may be a way to make direct contacts and target an already known audience. Perhaps utilizing the electronic marquee can also generate more buzz in regard to these classes.

Currently, there is no full-time instructor who teaches any of the courses in this area. Because of this, coordinating curriculum changes and program review is a challenge.

Aspirations: *(Include your data analysis of success, retention, enrollment, completion rates OR other relevant metrics in your response.)*

At some point, it would be beneficial to develop new courses and develop a local certificate incorporating the water treatment classes, chemistry classes, and microbiology classes. An actual program dealing with water utility science and/or water systems technology focusing on water treatment, distribution, and wastewater processes can also be developed. The program can perhaps provide instruction for water and wastewater industry personnel interested in career advancement as well as to provide continuing education anyone certified in the field. In order to accomplish this, it may be necessary to have dedicated full-time faculty who teach water chemistry and wastewater microbiology.

It may also be time to convert these classes to non-credit classes. This may generate more interest for students who may want to gain the knowledge necessary to take the exam without paying for a course.

Part 2B: (Required for CTE) External Data: Advisory Committee Recommendations & Labor Market Data

N/A

Part 2C: Review and comment on progress toward past Course Improvement Plans

List your past **Course Improvement Plans (CIPs)** and progress toward meeting those plans.

Last year, this was not available (the Chair could not coordinate with the adjunct faculty in the area to gather data/information and synthesize anything to use).

Part 2D: Review and comment on progress towards past program review goals:

List your past program review goals and progress towards those goals.

Past program review was missing for Water Treatment and Distribution.

Part 3: Based on Part 2 above, please list program/area goals:

Program /Area Goal #	Goal Supports which:				ESP Goal Primarily Supported:	Goal (Student-focused)	Steps to be taken to achieve the goal?	Measure of Success (How would you know you've achieved your goal?)
	ILO	PLO	SLO	OO				
#1 Begin the process of developing a local certificate program involving water utility science and/or water systems technology	ILO 4. Career and Specialized Knowledge				Goal #1 Service: Realign college policies, practices, and processes to remove barriers and to become more effective, efficient, and responsive to students, employees, and the community.	Expand upon current offerings to better serve students and provide more career opportunities	Research what is needed to begin certificate program, research into the number of classes needed as well as determining if there are adequate faculty to teach any potential courses.	This will be determined by if/when a certificate is offered within the next year.

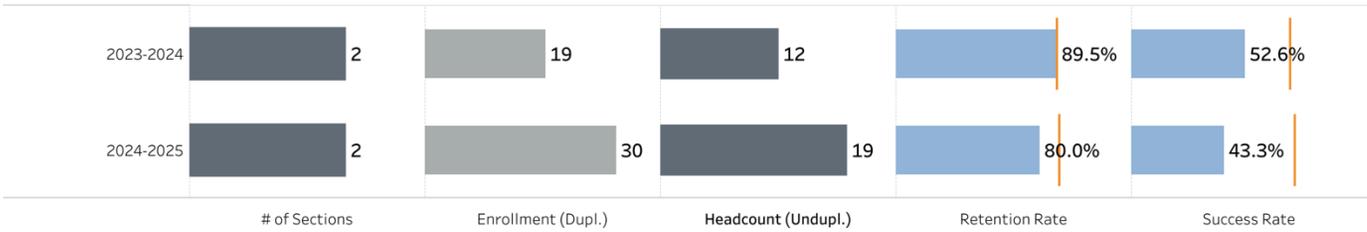
#2 – Outreach and increasing community interest	ILO 3. Community /Global Consciousness				Goal #4 Vision: Being more future-thinking, agile, innovative, and proactive.	Raise awareness regarding the benefits of water related jobs/education	Promotion of the current classes as well as brochures/flyers that highlight the need for jobs in this field.	Enrollment data from Fall 2023- Fall 2024
---	--	--	--	--	---	--	--	---

Part 4: Resource Requests that Support Program Goals (Based on the above analysis, please use the following space to document resource requests)							
Type of Resource Request	Summary of Request	Which of your Program/area goals (Part 3) does this request support?	New or Repeat Request	Amount of Request, (\$)	One-Time or Recurring Cost, (\$)	Contact's Name	
Technology	Purchase new licenses for VSL software (Digistar 7) and equipment to support the new software	#1	Repeat	\$200,000	One-time	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)	
Supplies	Purchase new lab equipment (i.e. telescopes, sky maps, sky simulation software, etc.) to replace currently aging equipment.	#2,3	Repeat	\$10,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)	
Professional development	Registration and/or travel to attend astronomy related conferences for curriculum development and training for the VSL equipment.	#1,4	Repeat	\$5,000	Recurring	Jedidiah Lobos (Dean), Mike Pesses (Chair), Mark McGovern (Faculty)	

Part 5: Insert your [Program Review Data](#) here and any other supporting data. (See Part 2A above for required data).
 Required:

- Enrollment tab
- Equity tab

WDTO : Enrollments, # of Sections, Retention and Success



WDTO: Enrollments, Number of Sections, Retention and Success by Modality



Program Awards: None



Classroom Teaching FTEF in WDTO

	Fall 2020	Fall 2021	Fall 2022	Fall 2023	Fall 2024
Part-time FTEF	0.40	0.40	0.40	0.40	0.40
Grand Total	0.40	0.40	0.40	0.40	0.40
FTES	2.2	2.6	3.0	2.0	3.1
FTES/FTEF Ratio	5.5	6.6	7.5	4.9	7.8
WSCH/FTEF Ratio	163.5	197.3	225.0	147.8	233.3
WSCH	65.4	78.9	90.0	59.1	93.3



Click for Fill Rates

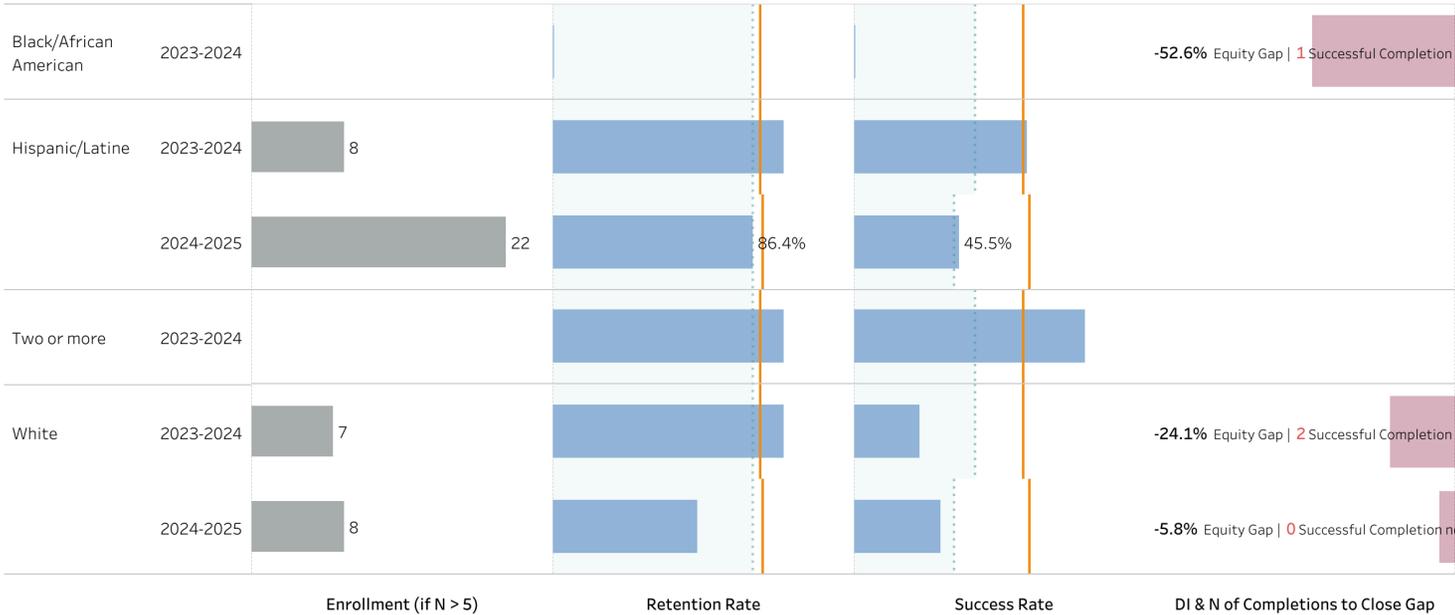
Click for FTES



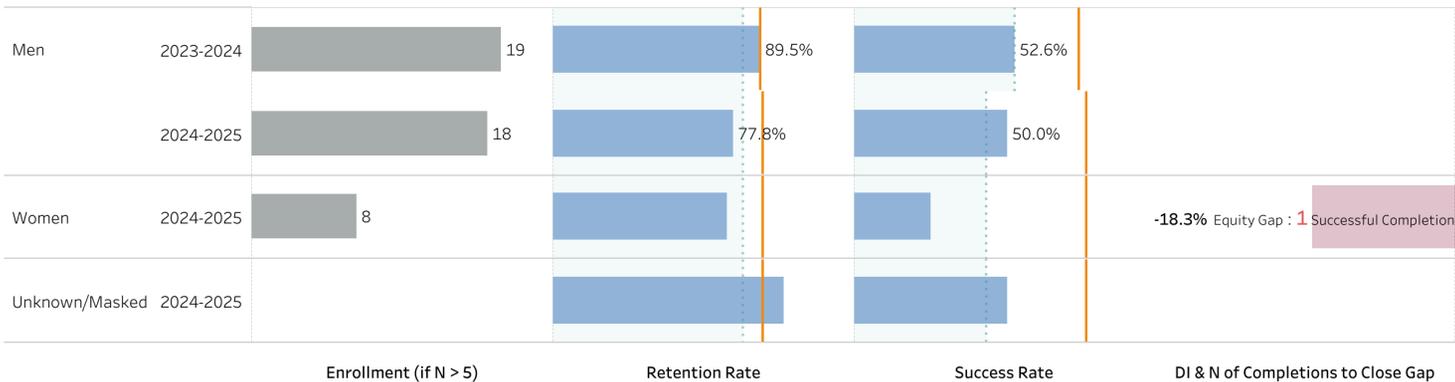
AVC Total Retention and Success are shown in vertical | **WDTO Success Rate is Green** | 

When the success rate for a subgroup is **at least 3 percentage points lower** than the overall average success rate for the selected subject, that subgroup is considered to be experiencing **Disproportionate Impact (DI)** under the **PPG methodology**. DI and the number of successful course completers needed to close equity gap are noted along "red" bars. Tooltip contains disaggregation by gender. To estimate the number of additional successful completers needed to close the equity gap, multiply the **subgroup enrollment** by the **size of the DI gap** (i.e., the difference between the average rate and the subgroup rate).

WDTO Enrollment, Retention & Success for by Race/Ethnicity (if greater than 5)



WDTO Enrollment, Retention & Success for by Gender (if greater than 5)



Guiding Questions for Reviewing DI Data:

- What patterns or trends in the DI data suggest inequities among different student groups?
- What factors might be contributing to observed equity gaps in our program (e.g., curriculum design, teaching practices, access to resources, advising, or broader institutional barriers)?
- What specific strategies, practices, or program-level interventions could we implement to reduce or eliminate these gaps?
- How might changes to pedagogy, curriculum, scheduling, student services, or outreach impact disproportionately affected groups?
- What institutional or community resources (e.g., funding, professional development, partnerships, student support services or centers) can we leverage to support equity-focused efforts?