Program Review - Overall Report

2024 - 2027

Instructional: Computer Information Systems & Computer Science

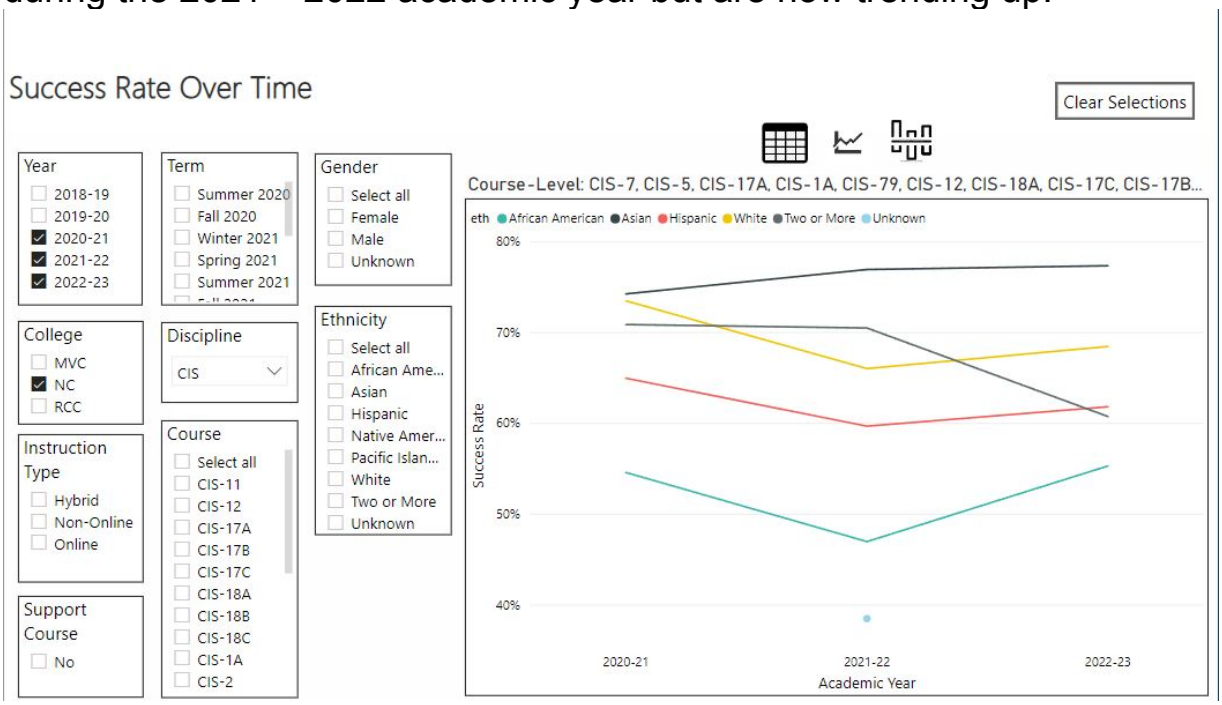
2024 - 2027

Overall Trends

Please add any relevant documents here.

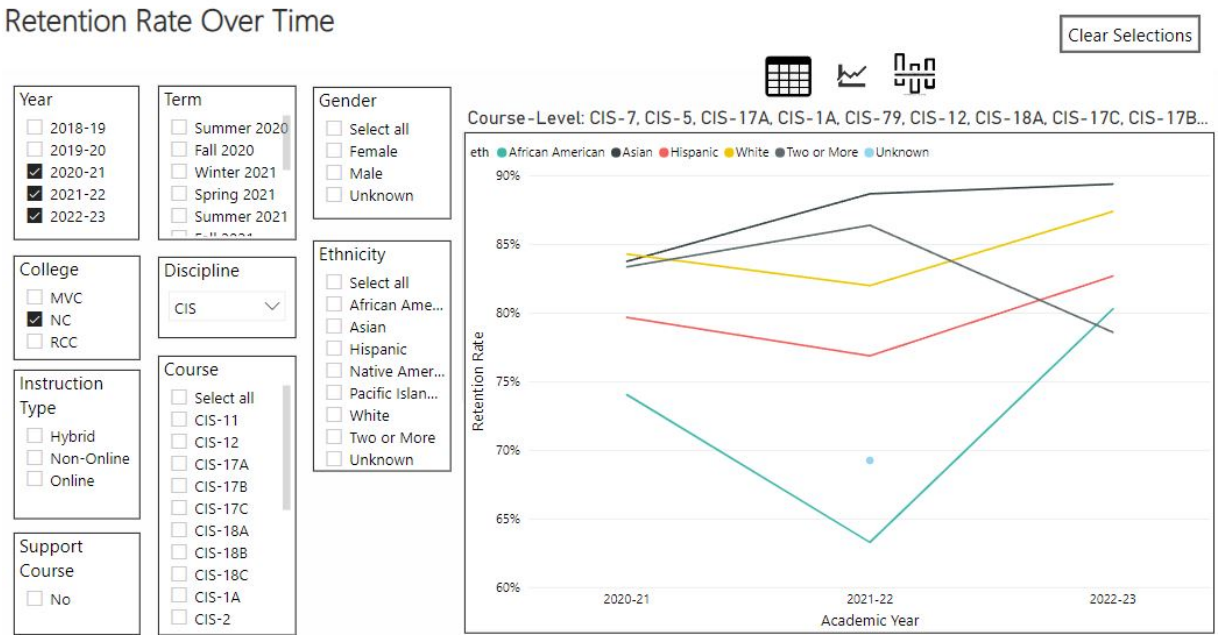
What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Overall, students in Computer Information Systems (CIS) courses) have a success rate which stayed virtually flat with an average of 65.7% over the last three full academic years. This is slightly lower than prepandemic rates which averages 69%. When disaggregated for ethnicity, it's clear that African American student success rates are well below the average. Hispanic student success rates are slightly below average. With the exception of White students, other student success rates dipped during the 2021 – 2022 academic year but are now trending up.

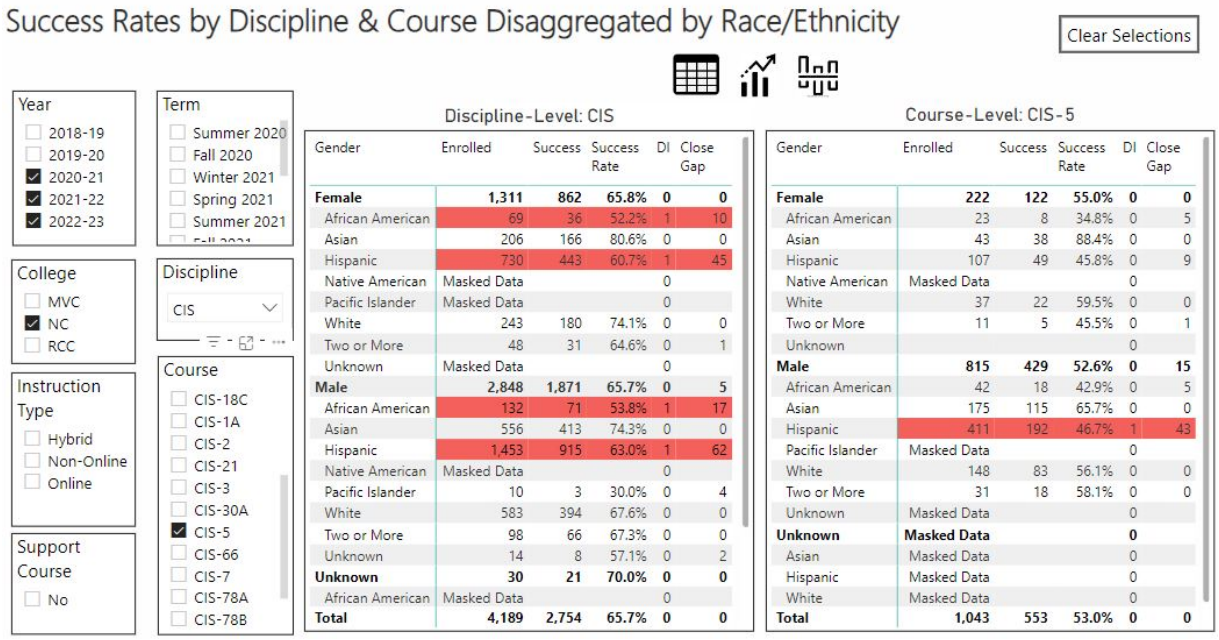


Retention rates have rebounded for the White, Hispanic and African American subgroups.

Data Review



In terms of student subgroups, African American Females and Hispanic Males are showing gaps in success that are concerning. Hispanic Males are also showing gaps in retention that are concerning.

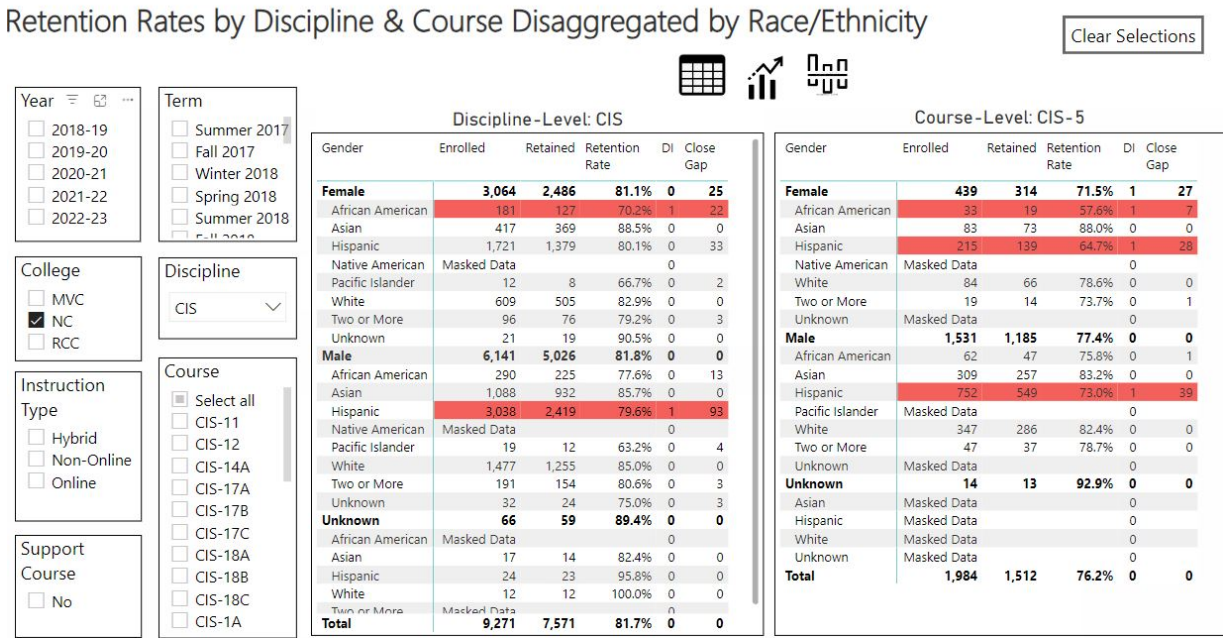


CIS-5 Success and Retention

Because CIS-5, Introduction to Programming Methodology using C++, is the entry level high enrollment computer programming course, the success and retention data is presented apart from the overall CIS/CSC data.

The overall success rate for CIS-5 is 53% compared to 65.7% for overall CIS success rates. This is concerning particularly because in the previous 3 year time period the success rate for CIS-5 was trending up with a success rate of 64% in 2019-2020. This

warrants further discussion among the CIS faculty particularly because CIS-5 is the foundational prerequisite course for other programming courses.



The overall retention rate for the CIS discipline is 81.7% which is improved from the previous years, however it is below the college average and below 88% which is the retention rate for CIS in Fall 2019. There is room for improvement.
CIS-5 retention rates are 76.2% which significantly lower retention rates for African American females, Hispanic females, and Hispanic males. Faculty are discussion strategies to address this disparity.

CIS-1A Success and Retention

Because CIS-1A (Introduction to Computer Information Systems) is an entry-level high-enrollment course, the success and retention data for CIS-1A is presented apart from the overall CIS data.

Success rates for CIS-1A are slightly higher than the overall CIS discipline rate, but still lower than the college average and lower than prepandemic rates. Areas of concern are success rats for Hispanic females and African American males.

Data Review

Success Rates by Discipline & Course Disaggregated by Race/Ethnicity

Clear Selections

Year: 2018-19, 2019-20, 2020-21, 2021-22, 2022-23

Term: Summer 2020, Fall 2020, Winter 2021, Spring 2021, Summer 2021

College: MVC, NC, RCC

Discipline: CIS

Instruction Type: Hybrid, Online

Course: Select all, CIS-11, CIS-12, CIS-17A, CIS-17B, CIS-17C, CIS-18A, CIS-18B, CIS-18C, CIS-1A, CIS-2

Support Course: No

Discipline-Level: CIS

Gender	Enrolled	Success	Success Rate	DI	Close Gap
Female	**1,311**	**862**	**65.8%**	**0**	**0**
African American	69	36	52.2%	1	10
Asian	206	166	80.6%	0	0
Hispanic	730	443	60.7%	1	45
Native American	Masked Data			0	
Pacific Islander	Masked Data			0	
White	243	180	74.1%	0	0
Two or More	48	31	64.6%	0	1
Unknown	Masked Data			0	
Male	**2,848**	**1,871**	**65.7%**	**0**	**5**
African American	132	71	53.8%	1	17
Asian	556	413	74.3%	0	0
Hispanic	1,453	915	63.0%	1	62
Native American	Masked Data			0	
Pacific Islander	10	3	30.0%	0	4
White	583	394	67.6%	0	0
Two or More	98	66	67.3%	0	0
Unknown	14	8	57.1%	0	2
Unknown	**30**	**21**	**70.0%**	**0**	**0**
African American	Masked Data			0	
Total	**4,189**	**2,754**	**65.7%**	**0**	**0**

Course-Level: CIS-1A

Gender	Enrolled	Success	Success Rate	DI	Close Gap
Female	**636**	**438**	**68.9%**	**0**	**1**
African American	27	17	63.0%	0	2
Asian	78	62	79.5%	0	0
Hispanic	388	252	64.9%	1	22
Native American	Masked Data			0	
Pacific Islander	Masked Data			0	
White	115	88	76.5%	0	0
Two or More	20	16	80.0%	0	0
Unknown	Masked Data			0	
Male	**770**	**531**	**69.0%**	**0**	**0**
African American	41	18	43.9%	1	11
Asian	106	82	77.4%	0	0
Hispanic	416	291	70.0%	0	0
Native American	Masked Data			0	
Pacific Islander				0	
White	175	120	68.6%	0	1
Two or More	23	15	65.2%	0	1
Unknown	Masked Data			0	
Unknown	**10**	**7**	**70.0%**	**0**	**0**
African American				0	
Total	**1,416**	**976**	**68.9%**	**0**	**0**

Retention rates for CIS-1A have rebounded to prepandemic levels with an average of 83.6%. No red flags appear when disaggregated for gender, race or ethnicity.

Retention Rates by Discipline & Course Disaggregated by Race/Ethnicity

Clear Selections

Year: 2018-19, 2019-20, 2020-21, 2021-22, 2022-23

Term: Summer 2020, Fall 2020, Winter 2021, Spring 2021, Summer 2021

College: MVC, NC, RCC

Discipline: CIS

Instruction Type: Hybrid, Online

Course: Select all, CIS-11, CIS-12, CIS-17A, CIS-17B, CIS-17C, CIS-18A, CIS-18B, CIS-18C, CIS-1A, CIS-2

Support Course: No

Discipline-Level: CIS

Gender	Enrolled	Retained	Retention Rate	DI	Close Gap
African American	69	45	65.2%	1	12
Asian	206	185	89.8%	0	0
Hispanic	730	582	79.7%	0	20
Native American	Masked Data			0	
Pacific Islander	Masked Data			0	
White	243	207	85.2%	0	0
Two or More	48	38	79.2%	0	2
Unknown	Masked Data			0	
Male	**2,848**	**2,336**	**82.0%**	**0**	**0**
African American	132	103	78.0%	0	6
Asian	556	479	86.2%	0	0
Hispanic	1,453	1,163	80.0%	1	42
Native American	Masked Data			0	
Pacific Islander	10	6	60.0%	0	3
White	583	491	84.2%	0	0
Two or More	98	82	83.7%	0	0
Unknown	14	11	78.6%	0	1
Unknown	**30**	**27**	**90.0%**	**0**	**0**
African American	Masked Data			0	
Asian	10	10	100.0%	0	0
Hispanic	Masked Data			0	
White	Masked Data			0	
Two or More	Masked Data			0	
Unknown	Masked Data			0	
Total	**4,189**	**3,431**	**81.9%**	**0**	**0**

Course-Level: CIS-1A

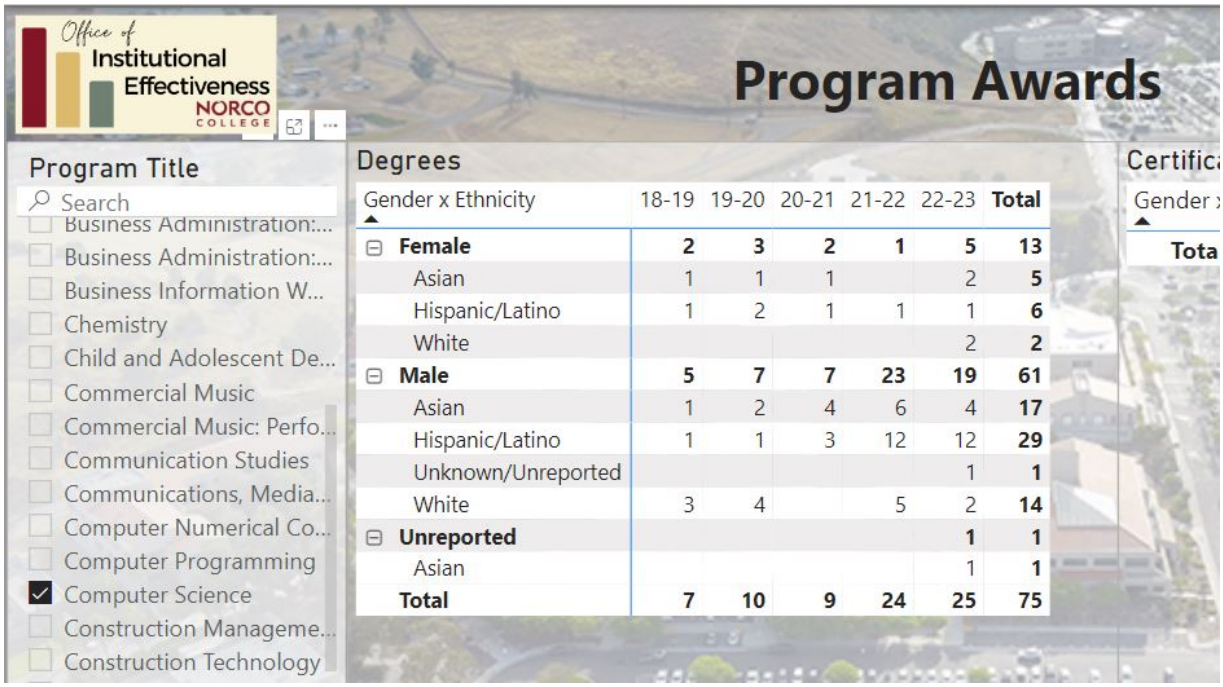
Gender	Enrolled	Retained	Retention Rate	DI	Close Gap
Female	**636**	**535**	**84.1%**	**0**	**0**
African American	27	22	81.5%	0	1
Asian	78	70	89.7%	0	0
Hispanic	388	320	82.5%	0	7
Native American	Masked Data			0	
Pacific Islander	Masked Data			0	
White	115	99	86.1%	0	0
Two or More	20	18	90.0%	0	0
Unknown	Masked Data			0	
Male	**770**	**640**	**83.1%**	**0**	**9**
African American	41	30	73.2%	0	5
Asian	106	96	90.6%	0	0
Hispanic	416	344	82.7%	0	6
Native American	Masked Data			0	
Pacific Islander				0	
White	175	143	81.7%	0	4
Two or More	23	21	91.3%	0	0
Unknown	Masked Data			0	
Unknown	**10**	**9**	**90.0%**	**0**	**0**
African American				0	
Asian	Masked Data			0	
Hispanic	Masked Data			0	
White	Masked Data			0	
Two or More	Masked Data			0	
Total	**1,416**	**1,184**	**83.6%**	**0**	**0**

Program Awards

Computer Science

The number of program awards for Computer Science continues to increase, with the exception of the 20-21 academic year. The addition of the ADT Computer Science is likely contributing to the increase.

Data Review



Computer Programming Certificate

The number of students completing the certificate in Computer Programming remains low. In the past there are a large number of students who declare this certificate as a program of study but do not follow through, or perhaps the institution is not capturing the data. Students may take a few courses and then leave to join the workforce without the need to complete the certificate. It would be interesting to dig deeper and determine if this certificate is providing students with meaningful skills.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?
As indicated in the Overal Trends report, areas of concern are African American females, African American males, Hispanic females and Hispanic males.
Yes, we will attempt to address the equity gaps with the support of the institution.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?
The plan of action is to work with the institution to recruit more females and African American students into CIS programs of study. Faculty can then address retention and succes rates in a variety of ways including highlighting contributions by femails and African American computer scientists, encouraging outside support such as tutoring in the LRC and embedded tutors in online classes. Faculty will continue to educate themselves on equity minded practices.

Please add any relevant documents here.

2026 Update

Overall Trends

Please add any relevant documents here.

Data Review

What overall trends do you see in success, retention, program of study, educational planning, and awards over the past 3 or more years?

Since the last comprehensive review (2024-2027), the Computer Information Systems (CIS) discipline has seen relatively stable enrollment trends, as evidenced by the Power BI Program of Study and SEP dashboard data. Total program of study declarations across CIS programs (Computer Applications, Computer Programming, Computer Science, and Computer Maintenance and Security) went from 624 students in 2021-22 to a peak of 829 in 2023-24, before settling at 782 in 2024-25. This upward trajectory followed by a modest decline suggests that while interest in CIS fields remains strong, the discipline must continue to actively recruit and retain students to sustain growth. The Power BI data reveals that Computer Science remains the largest program within the discipline, while Computer Applications and Computer Maintenance and Security serve smaller but important student populations that contribute to workforce readiness in the Inland Empire region.

From an equity and accessibility perspective, the discipline remains heavily male-dominated, with male students consistently comprising over 75% of the student population (478 males vs. 138 females in 2021-22; 601 males vs. 163 females in 2024-25). This persistent gender imbalance is a significant equity concern that the program must address through targeted outreach and recruitment strategies, particularly to female-identifying and gender non-conforming students. The program has seen the encouraging emergence of non-binary students, growing from 0 in 2021-22 to 13 in 2024-25, which reflects a growing awareness of gender diversity in the technology sector and the importance of creating inclusive learning environments that welcome all gender identities. The program is committed to ensuring that all students, regardless of gender identity, feel supported and have equitable access to resources, mentorship, and career pathways within the CIS discipline.

Hispanic/Latino students represent the largest demographic group in CIS, which aligns with the overall demographics of Norco College and the surrounding community. According to the Power BI Success and Retention dashboard, this population is followed by Asian students and White students in terms of enrollment. African American student representation remains relatively small but stable, and the program recognizes the need to actively recruit and support African American students to ensure the discipline reflects the diversity of the broader community. The program is also mindful of the need to provide culturally responsive instruction and support services that are accessible to students from all backgrounds, including first-generation college students who may face additional barriers to success in technology-related fields.

Retention rates for the CIS discipline at Norco College are 83.6% overall, which is slightly below the college average, according to the Power BI Success and Retention dashboard. Female students retain at 83.5% and male students at 83.5% as well, showing gender parity in retention. However, notable and concerning disparities exist for African American male students, who retain at only 75.9%, and Hispanic male students at 81.0%. These retention gaps represent significant equity concerns that the program must address through early intervention strategies, enhanced tutoring support at the recently renovated STEM Center, and proactive faculty outreach. The STEM Center renovation has provided additional accessible study spaces, tutoring stations with assistive technology, and collaborative learning areas that are designed to be welcoming and inclusive for all students, particularly those from historically underrepresented groups in technology fields.

Overall success rates for CIS stand at 66.8%, with significant variation across demographic groups as shown in the Power BI data. Asian students perform the strongest at approximately 75-81%, demonstrating that high levels of achievement are possible within the discipline's curriculum. However, African American male students have the lowest success rate at 52.8%, representing a substantial equity gap of 14 percentage points below the discipline average. Hispanic students succeed at approximately 62-63%, also below the discipline average, which is particularly concerning given that they represent the largest demographic group in CIS. These disparities underscore the urgent need for equity-minded teaching practices, culturally responsive pedagogy, and enhanced support services that address the specific barriers faced by students from underrepresented groups. The program is committed to closing these gaps through intentional interventions, including the use of Open Educational Resources (OER) to reduce cost barriers, the integration of Universal Design for Learning (UDL) principles to ensure course materials are accessible to all learners, and the leveraging of the STEM Center's expanded resources for targeted tutoring and academic support.

The proportion of CIS students without an Educational Plan remains a major concern at 73.89%, well above the college average, as documented in the Power BI Program of Study and SEP dashboard. Only 3.42% have an abbreviated and comprehensive Ed Plan, and 17.21% have a comprehensive Ed Plan. This lack of educational planning disproportionately affects students from underrepresented groups who may not have access to guidance about academic pathways and career opportunities in technology. The absence of Ed Plans likely contributes to lower success rates, longer time to completion, and reduced award attainment. Addressing this gap is critical for equity, as students without clear educational plans are less likely to complete certificates and degrees, transfer to four-year institutions, or achieve their career goals. The program will work closely with counseling services to

implement intrusive advising strategies and integrate Ed Plan awareness into course orientations and first-week activities across all CIS sections.
In terms of awards, the Power BI Program Awards dashboard shows that the CIS discipline has conferred 123 degrees and 19 certificates over the past five years across Computer Programming and Computer Science programs. Awards are disproportionately conferred to male students (99 degrees to males vs. 21 to females), which mirrors the enrollment gender gap but also highlights the need to ensure that female students who do enroll in CIS programs are supported through to completion and award attainment. Hispanic/Latino males received the most degrees (50), followed by Asian males (26) and White males (19). Very few awards have been conferred to African American students (3 degrees total), which represents a critical equity gap that must be addressed through targeted retention and completion efforts. The program recognizes that increasing award attainment among underrepresented groups requires a multifaceted approach that includes accessible course scheduling, affordable course materials through OER adoption, robust tutoring and mentoring support at the STEM Center, and intentional connections to transfer pathways and career opportunities in the technology industry.

Disaggregated Student Subgroups

Look at the disaggregated student subgroups in success, retention, program of study, educational planning, and awards for your area. Are there any equity gaps that you will address in the next 3 years?
In review of the disaggregated student subgroups for the CIS discipline, as documented in the Power BI Success and Retention dashboard, several significant equity gaps demand immediate and sustained attention over the next three years. The data reveals deeply concerning disparities that, if left unaddressed, will continue to perpetuate inequitable outcomes for students from historically underrepresented groups in technology fields.
The most pronounced equity gap is in the success rates of African American male students, who succeed at only 52.8% compared to the discipline average of 66.8%. This represents a gap of 14 percentage points, which is both statistically and practically significant. When examined through an equity lens, this gap suggests that the current instructional approaches, support structures, and campus climate may not be adequately serving African American male students in CIS. African American male students also show lower retention at 75.9% compared to the overall 83.6%, indicating that these students are leaving CIS courses at higher rates than their peers. This attrition represents not only a loss for the individual students but also a loss for the discipline and the technology workforce, which benefits from diverse perspectives and experiences. The program must examine whether course content, teaching methods, and classroom environments are culturally responsive and whether African American male students feel a sense of belonging in CIS courses.
Hispanic/Latino students, while representing the largest demographic group in CIS at Norco College, also underperform in success rates at approximately 62-63%, which is below the discipline average of 66.8%. Given that Hispanic/Latino students are the majority population at Norco College, this underperformance represents a systemic equity concern that affects a large number of students. The Power BI data shows that Hispanic male students retain at 81.0%, also below the overall retention rate. The program must consider whether language accessibility, culturally relevant examples in curriculum, and connections to Hispanic-serving community organizations could improve outcomes for this population. As a Hispanic-Serving Institution, Norco College has a particular responsibility to ensure that Hispanic/Latino students in CIS have equitable access to success.
Gender disparities are substantial across the discipline and represent one of the most significant equity challenges. Males outnumber females by roughly 4:1 in enrollment (601 males vs. 163 females in 2024-25), and this disparity is magnified in awards, where males received 99 of 123 total degrees conferred over the past five years. Female representation in CIS remains low at approximately 20% of the student population, which is well below the national average for women in computing programs. This underrepresentation reflects broader societal barriers that discourage women from pursuing technology careers, including stereotypes, lack of role models, and unwelcoming environments. The program must actively work to recruit, retain, and support female students through targeted outreach, mentoring programs, and the creation of inclusive classroom environments that validate diverse contributions to the field. Non-binary students are beginning to appear in the data (13 in 2024-25, up from 0 in 2021-22) but remain a very small group that requires intentional support and visibility.
The Ed Plan completion rate of only 26% (with 74% having no Ed Plan at all) represents a systemic concern that likely contributes to lower success and award attainment across all subgroups. The Power BI Program of Study and SEP dashboard reveals that this lack of educational planning disproportionately affects students from underrepresented groups who may not have access to guidance about academic pathways and career opportunities in technology. Students without Ed Plans are navigating their educational journey without a roadmap, which can lead to excess unit accumulation, longer time to completion, financial strain, and ultimately, dropping out. From an accessibility standpoint, the program must ensure that Ed Plan information and counseling referrals are

available in multiple formats and languages, and that students can access these services both in-person and online to accommodate diverse schedules and circumstances.
The program will focus its equity efforts over the next three years on four key priorities: (1) improving success and retention outcomes for African American students through culturally responsive pedagogy and targeted support services, (2) closing the gender gap through intentional recruitment of female and non-binary students and the creation of welcoming and inclusive learning environments, (3) increasing Ed Plan completion rates among all CIS students through enhanced collaboration with counseling services and embedded advising, and (4) improving success rates for Hispanic/Latino students through culturally relevant curriculum and support services that leverage the resources of our recently renovated STEM Center, which provides accessible tutoring spaces, assistive technology, and collaborative learning environments designed to serve all students equitably.

If there are any concerning trends over the past 3 or more years, or if equity gaps exist, what is your action plan to address them?
The action plan to address the identified equity gaps is comprehensive and data-driven, informed by the Power BI dashboards for Success and Retention, Program of Study and SEP, and Program Awards. The plan focuses on several interconnected key areas that collectively aim to create a more equitable, accessible, and inclusive learning environment for all CIS students at Norco College.
(1) African American Student Success - Faculty will implement proactive and intentional outreach to African American students, including early-semester check-ins during the first two weeks of classes, targeted tutoring referrals to the recently renovated STEM Center, and direct connection to campus support services such as Umoja, the STEM Center, and other culturally affirming programs. The discipline will work to identify at-risk students early using the college's early alert systems and provide timely interventions that connect students with appropriate resources before they fall behind. Faculty will participate in professional development focused on culturally responsive teaching practices that create classroom environments where African American students feel valued, seen, and supported. The Power BI data showing a 52.8% success rate for African American male students compared to the 66.8% discipline average will serve as the baseline metric, with the goal of reducing this gap by at least 5 percentage points over the next three years. Additionally, the program will explore embedding peer mentoring opportunities within CIS courses, pairing successful students with those who may benefit from additional guidance and community connection.
(2) Gender Equity and Recruitment - The program will partner with K-12 outreach programs and local school districts to promote CIS programs to female students through coding events, hackathons, workshops, and career panels that showcase diverse role models in the technology industry. Faculty will collaborate with Women in STEM initiatives on campus to create a more welcoming and supportive environment for female students, including the development of study groups and networking opportunities specifically designed to build community among women in CIS. The program will also review marketing materials and course descriptions to ensure they use inclusive language that appeals to a broad audience and does not inadvertently reinforce gender stereotypes about who belongs in technology fields. Given that females represent only approximately 20% of CIS enrollment and received only 21 of 123 degrees, the program will track female enrollment, retention, success, and award attainment as key equity metrics. The program will also ensure that non-binary and gender non-conforming students have access to supportive resources and that all program communications use inclusive language and pronouns.
(3) Ed Plan Completion - The program will work closely with counseling services to dramatically increase Ed Plan completion rates among CIS students, addressing the alarming 73.89% of students who currently lack any form of educational plan. Faculty will integrate Ed Plan awareness into course orientations and first-week activities across all CIS sections, including providing students with step-by-step instructions for scheduling counseling appointments and accessing online Ed Plan tools. The program will explore embedding counseling liaisons into high-enrollment CIS courses and hosting dedicated Ed Plan completion events each semester in the STEM Center. From an accessibility perspective, Ed Plan resources and counseling referrals will be made available in multiple formats (print, digital, video) and in both English and Spanish to serve the diverse linguistic needs of our student population. The goal is to increase the percentage of CIS students with comprehensive Ed Plans from 17.21% to at least 40% over the next three years, which the Power BI data suggests would have a measurable positive impact on success and award attainment rates.
(4) Hispanic/Latino Student Support - Given that Hispanic/Latino students are the largest demographic in CIS but underperform in success rates at approximately 62-63%, the program will ensure that culturally responsive pedagogy is integrated into course delivery across all CIS sections. Faculty will be encouraged and supported to participate in professional development related to equity-minded teaching practices, including training on how to incorporate culturally relevant examples, case studies, and projects into CIS curriculum. The program will strengthen connections with campus programs that serve Hispanic/Latino students, including Puente and other student success initiatives, to create wraparound support networks. As a Hispanic-Serving Institution, Norco

Data Review

College has both a responsibility and an opportunity to be a leader in closing equity gaps for Hispanic/Latino students in technology fields. The program will also explore Spanish-language tutoring options at the STEM Center and ensure that all program communications and resources are accessible to students whose first language is not English.

(5) Curriculum, Instruction, and Accessibility - The program will continue to review and update curriculum to ensure relevance to current industry needs, which supports student engagement, persistence, and completion. Faculty will adopt Open Educational Resources (OER) and Zero-Textbook-Cost (ZTC) materials wherever possible to reduce financial barriers that disproportionately affect students from low-income backgrounds. The program will integrate Universal Design for Learning (UDL) principles into course design to ensure that all course materials, activities, and assessments are accessible to students with diverse learning needs, including those with disabilities. The recently renovated STEM Center will serve as the hub for enhanced tutoring, study spaces, and collaborative learning opportunities for CIS students, with particular attention to ensuring that the physical space and technology resources are fully accessible to all students. The STEM Center's assistive technology workstations, adjustable furniture, and quiet study areas provide an inclusive environment that supports the academic success of all learners, regardless of ability or background.

Please add any relevant documents here.

Program/Unit Goals

Program Awards (EMP Goal 2, Objective 2.1)

Program/Unit Goal
Increase number of degrees completed annually in Computer science (EMP Goal 2, Objective 2.1)

Goal Cycle
2024 - 2027

What are you doing now in support of this goal?
The department recognizes that many students have professional and family obligations that conflict with traditional college schedules and make it difficult for these students to complete a course of study. The department has been working to increase flexibility of student schedules and access to classes by increasing the number of offered hybrid and online courses to allow students to access classes more easily and thereby increase accessibility of classes to students and encourage degree completion. Trends seem to suggest significant success within this approach, as the number of Computer Science degrees has risen in correspondence with the number of hybrid and online classes available.

What are your plans (3-year) regarding this goal?
The department is planning to investigate offering an increased number of hybrid and online classes along with investigating options for ZCT (zero cost textbook) class offerings to increase course accessibility and degree completion to a wider range of students.

Please add any relevant documents here.
Awards.png

Mapping
Educational Master Plan (2020-2025): *undefined*

- **2025 Objective 2.1 - KPI 4 (Academic Affairs):** Increase number of degrees completed by 15% annually (✔)

Progress and Evidence

Evidence Date
03/22/2024

What progress have you made toward this goal?

How do you measure your progress?

Discuss your evidence/results.

Please provide any assessment data or other evidence that supports this Program/Unit Goal.
The program awards data shows a significant increase in program completion and the number of degrees awarded for Computer Science over the assessment period.

Is there a resource request associated with this Goal?
No

If yes, please provide a short description.

Please add any relevant documents here.
Awards.png

Program Awards (EMP Goal 2, Objective 2.2)

Program/Unit Goal
Increase number of certificates completed annually in Computer science (EMP Goal 2, Objective 2.2)

Goal Cycle

Program/Unit Goals

2024 - 2027

What are you doing now in support of this goal?

The department recognizes that many students have professional and family obligations that conflict with traditional college schedules and make it difficult for these students to complete a course of study. The department has been working to increase flexibility of student schedules and access to classes by increasing the number of offered hybrid and online courses to allow students to access classes more easily and thereby increase accessibility of classes to students and encourage certificate completion. There is an upward trend in certificates obtained which seems to indicate certificate completion has increased in correspondence with the number of hybrid and online classes available. Recently Norco College has also adopted the Python Programming Certificate in Computer Science expanding the number of potential certificates that can be completed and offering additional options to students.

What are your plans (3-year) regarding this goal?

The department is planning to investigate offering an increased number of hybrid and online classes along with investigating options for ZCT (zero cost textbook) class offerings to increase course accessibility and certificate completion to a wider range of students.

Please add any relevant documents here.

Awards.png

Mapping

Educational Master Plan (2020-2025): *undefined*

- **2025 Objective 2.2 - KPI 5 (Academic Affairs):** Increase number of certificates completely by 15% annually (✔)

Progress and Evidence

Evidence Date

03/22/2024

What progress have you made toward this goal?

How do you measure your progress?

Discuss your evidence/results.

Please provide any assessment data or other evidence that supports this Program/Unit Goal.

The assessment report shows a general increase in the number of certificates awarded.

Is there a resource request associated with this Goal?

No

If yes, please provide a short description.

Please add any relevant documents here.

Awards.png

Curriculum

Are all your courses current (within four years)?
No

What percentage of your courses are out of date?
More than 25%

If you have courses that are not current, are they in the curriculum process?
No

For out of date courses that are not already in progress of updating, what is your plan?
Ten CIS courses have not been updated since 9/1/2020. In all instances the updates require book updates. Faculty are discussing a plan to address the update plan.

Do you have proposals in progress for all the DE courses you intend to file?
No

Do you require help to get your courses up to date?
No

Please add any relevant documents here.
Screenshot 2024-03-22 at 3.17.02 PM.png

Credit for Prior Learning

2024 - 2027

Equity Related Professional Development Questions

1. Which equity-related professional development trainings have members of your area participated in to improve student learning, student support, and/or college support?
Members of the CIS Discipline have completed a number of equity related trainings and certifications. Through CORA, certifications were obtained in: Black Ally Program - Dismantling Anti-Blackness on Your Campus, Black Minds Matter, and Racial Microaggressions. Faculty members have also attended several of the CCCAOE (California Community College Association for Occupational Education) which has a number of rich sessions focused on equity and bridging equity gaps. All Faculty members were in attendance of the Achieving Equity in Guided Pathways summit lead by keynote speaker Dr. Rob Johnstone (September 14th and 15th, 2023). Aside from trainings, we also have one Faculty member representative that serves on the LGBTQ+ Advocates committee, a group that emphasises equity and fair representation at Norco College

2. What knowledge or skills/techniques have members in your area implemented from these trainings and what changes have you seen?
The discipline is encouraging the adoption of zero cost textbook courses where it is pedagogically sound. Reducing the cost reduces a barrier to take a course. Highlighting non-male and African American contributions to the field lets students see themselves in these roles. Recruiting tutors with diverse ethncities to support student success is another technique. Understanding micro-agressions and addressing any in the classroom supports an inclusive classroom environment.

3. What additional equity-related professional development/trainings do you seek to better support your area?
None come to mind.

Please add any relevant documents here.

2026 Update

Equity Related Professional Development Questions

1. Which equity-related professional development trainings have members of your area participated in to improve student learning, student support, and/or college support?
Faculty in the CIS program have actively participated in a wide range of equity-related professional development trainings offered through Norco College's professional development program, the Riverside Community College District, and external organizations focused on equity in higher education. These trainings have been specifically selected to address the equity gaps identified in the Power BI Success and Retention data, which show significant disparities in outcomes for African American male students (52.8% success rate vs. 66.8% discipline average), Hispanic/Latino students (62-63% success rate), and female students who are severely underrepresented at only 20% of CIS enrollment.

Core equity training areas have included culturally responsive pedagogy, which focuses on how to design instruction that validates and incorporates the cultural backgrounds, experiences, and perspectives of all students. Faculty have participated in workshops on inclusive classroom strategies that create learning environments where students from all backgrounds feel welcomed, valued, and intellectually challenged. Training on understanding and mitigating implicit bias in student interactions has been particularly important, as research shows that unconscious biases can affect grading, classroom participation patterns, and the quality of faculty-student relationships, all of which directly impact student success and retention.

Faculty have also attended comprehensive workshops on Universal Design for Learning (UDL), which provides a framework for designing course materials, activities, and assessments that are accessible and equitable for all student populations, including students with disabilities, English language learners, and students with diverse learning styles. UDL training has been especially relevant for CIS courses, where technical content can present unique accessibility challenges, such as ensuring that coding environments, software tools, and online platforms are compatible with assistive technologies like screen readers, voice recognition software, and alternative input

devices. Faculty have learned to create multiple means of engagement, representation, and action/expression in their courses to reach all learners.

Additionally, CIS faculty have participated in STEM-focused equity trainings that address the unique challenges faced by underrepresented students in computing disciplines. These trainings have covered topics such as stereotype threat, imposter syndrome, microaggressions in STEM environments, and strategies for creating a sense of belonging for students who may not see themselves represented in the technology workforce. Faculty have also attended professional development sessions on equity-minded assessment practices, which focus on designing assessments that measure true learning rather than cultural familiarity or prior access to technology. The program has also sent faculty to regional and national conferences on diversity in computing education, where they have learned from peers and researchers about evidence-based strategies for closing equity gaps in computer science and information systems programs.

Furthermore, faculty have participated in training related to Open Educational Resources (OER) and Zero-Textbook-Cost (ZTC) course design, recognizing that the cost of textbooks and software can be a significant barrier to access and success for low-income students, who are disproportionately students of color. By eliminating or reducing textbook costs, the CIS program is working to remove financial barriers that contribute to equity gaps in enrollment, persistence, and completion.

2. What knowledge or skills/techniques have members in your area implemented from these trainings and what changes have you seen?
Faculty have begun implementing a broad range of inclusive and equity-minded teaching practices in CIS courses as a direct result of the professional development trainings described above, and the changes observed in classroom culture and student engagement have been encouraging, though sustained effort is needed to close the equity gaps identified in the Power BI data.

One of the most impactful changes has been the intentional incorporation of diverse representation in course examples, case studies, and project scenarios. Faculty now regularly highlight contributions from underrepresented groups in technology, including women, people of color, and individuals from non-traditional backgrounds who have made significant contributions to computing, cybersecurity, programming, and information systems. This approach helps counter stereotype threat by showing all students that people who look like them have succeeded in technology fields, fostering a stronger sense of belonging and motivation.

Check-in practices with African American and Hispanic/Latino students have been implemented to better understand and address their individual needs, academic challenges, and personal circumstances that may affect their success. These check-ins are conducted during office hours, before and after class, and through Canvas messaging, and have helped faculty identify students who are struggling early in the semester so that timely interventions can be made. Faculty report that these proactive check-ins have strengthened faculty-student relationships and have led to increased student engagement and help-seeking behavior among students who previously may have been reluctant to ask for support.

Faculty are more intentional about creating inclusive classroom environments where all students feel they belong, regardless of their gender, race, ethnicity, age, disability status, or prior experience with technology. This includes establishing clear classroom norms that promote respectful discourse, collaborative learning, and the valuing of diverse perspectives. Faculty have restructured group work and collaborative projects to ensure that all students have opportunities to contribute meaningfully, rather than allowing dominant voices to overshadow quieter or less confident students.

The recently renovated STEM Center has been leveraged extensively to provide additional tutoring support for CIS students, with particular attention to serving students from underrepresented groups. The STEM Center's accessible design, which includes assistive technology workstations, adjustable furniture, quiet study areas, and collaborative learning spaces, has created a welcoming environment where students can receive tutoring, participate in study groups, and access academic resources. Faculty have established regular tutoring hours at the STEM Center specifically for CIS courses and have connected students with peer tutors who reflect the diversity of the student population.

Faculty have worked collaboratively with counseling services to increase Ed Plan completion among CIS students, recognizing that the Power BI data shows 73.89% of CIS students lack any form of educational plan. This has

included embedding Ed Plan information into course syllabi, dedicating class time during the first week of the semester to discuss the importance of educational planning, and providing students with direct links and instructions for scheduling counseling appointments. Faculty have also participated in cross-functional meetings with counseling to develop streamlined referral processes.

Early alert referrals are being used more consistently and strategically to identify and support at-risk students, particularly those from demographics that the Power BI data shows are most vulnerable to attrition and failure. Faculty have established clear criteria for early alerts based on attendance patterns, assignment completion, and assessment performance, and have committed to submitting alerts within the first three weeks of the semester to ensure that interventions can be effective.

Additionally, faculty have begun adopting OER and ZTC materials in several CIS courses, reducing the financial burden on students and removing a significant barrier to access and equity. The adoption of UDL principles has led to the creation of more flexible assessments, multiple formats for content delivery (video, text, interactive), and alternative demonstration options that allow students to show their learning in ways that align with their strengths and circumstances.

3. What additional equity-related professional development/trainings do you seek to better support your area?
The CIS program has identified several critical areas where additional equity-related professional development and training would significantly benefit faculty and support the program's equity goals, as informed by the concerning disparities revealed in the Power BI Success and Retention, Program of Study and SEP, and Program Awards dashboards.

First and foremost, the program would benefit from specialized, in-depth training on targeted student support strategies for African American students, who have the largest equity gap in success rates within the CIS discipline (52.8% vs. 66.8% discipline average, per the Power BI data). This training should go beyond general culturally responsive pedagogy to address the specific barriers, experiences, and needs of African American students in computing and technology fields. Faculty need evidence-based strategies for building trust, creating culturally affirming classroom environments, and designing interventions that are responsive to the intersection of race, gender, and socioeconomic status. Training that includes perspectives from African American students and professionals in the technology industry would be especially valuable, as it would help faculty understand the lived experiences of their students and develop more effective support strategies.

Professional development on recruiting and retaining students from underrepresented communities in STEM and computing fields is also critically needed, given that the Power BI data shows females represent only approximately 20% of CIS enrollment, African American students receive only 3 of 123 total degrees, and the discipline remains overwhelmingly male and non-diverse compared to the broader student population at Norco College. Faculty need training on effective outreach strategies to K-12 schools, community organizations, and underrepresented populations, as well as retention strategies that address the specific reasons why students from these groups leave CIS programs. This should include training on how to create marketing materials, course descriptions, and program information that are inclusive and welcoming to diverse audiences.

Training on equity-focused assessment practices would be particularly valuable for the CIS discipline, where traditional assessment methods (timed exams, coding challenges, technical quizzes) may inadvertently disadvantage students who have less prior experience with technology or who come from educational backgrounds where technology access was limited. Faculty need professional development on designing assessments that measure true learning and competency rather than prior exposure or familiarity with technology, and that provide equitable opportunities for all students to demonstrate their knowledge and skills. This should include training on alternative assessment methods, portfolio-based assessment, collaborative assessments, and the use of rubrics that are transparent and culturally responsive.

Workshops specifically focused on closing the gender gap in computing education are essential, given the persistent 4:1 male-to-female ratio in CIS enrollment and the even more stark disparity in awards (99 degrees to males vs. 21 to females). Faculty need training on the specific factors that discourage women and non-binary individuals from pursuing and persisting in computing education, including stereotype threat, imposter syndrome, hostile or unwelcoming classroom climates, and the lack of visible role models. Training should include practical strategies for creating gender-inclusive classrooms, promoting collaborative rather than competitive learning

environments, and connecting female students with mentoring and networking opportunities.

Faculty would also benefit significantly from professional development on how to effectively leverage the recently renovated STEM Center resources for targeted student success initiatives. While the STEM Center provides an excellent physical infrastructure with accessible tutoring spaces, assistive technology workstations, collaborative learning areas, and quiet study rooms, faculty need training on how to integrate these resources into their course design and student support strategies in ways that specifically address equity gaps. This includes training on how to structure tutoring sessions that are culturally responsive, how to recruit and train diverse peer tutors, and how to create STEM Center programming that is intentionally designed to serve students from underrepresented groups.

Additionally, the program seeks training on data literacy for equity, specifically how to use the Power BI dashboards and other institutional data tools to continuously monitor equity gaps, track the effectiveness of interventions, and make data-informed decisions about where to focus resources and efforts. Faculty need to become proficient in reading and interpreting disaggregated data so that they can identify emerging trends, celebrate progress, and adjust strategies when outcomes are not improving for specific student populations. Training on accessibility compliance and assistive technology in computing education would also be valuable, ensuring that all CIS courses and resources meet ADA requirements and are fully accessible to students with disabilities.

Please add any relevant documents here.

Assessment

Outcome Mastery

Date
03/20/2024

Observation

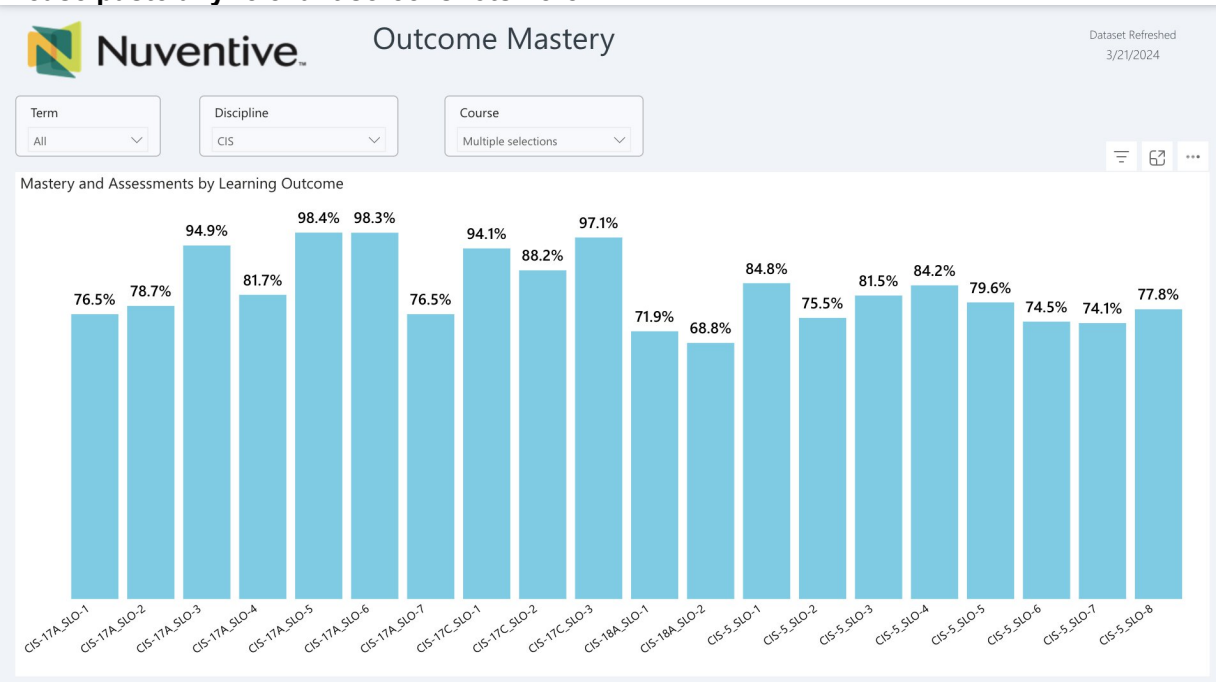
What did you notice?
SLO_2 had a low mastery level which demonstrates a slight upward trend over time.

Course(s)
CIS-18A

SLO(s)
CIS-18A_SLO-2
Demonstrate an understanding of the fundamentals of object-oriented development sufficient to create and use classes as the foundation of Java application programs.

Discussion/Analysis
Students demonstrate a low mastery level in CIS-18A SLO#2 which relates to object-oriented programming in Java. However, students are also achieving a high mastery level in SLO#1 relating to functional programming in a Java IDE. This suggests that a higher emphasis should be placed on object-oriented concepts in CIS-18A. However, data shows an upward trend in mastery level for this SLO, which may indicate that adjustments to the course are already having a positive effect on SLO#2. The department should take into account outcome data related to this SLO and assess whether or not additional changes need to be made.

Please paste any relevant screenshots here.



Please add any relevant documents here.

Outcome Mastery by Demographics

Date
03/20/2024

Observation

What did you notice?
There are some gaps evident in gender/age/ race/ethnicity subgroups

Assessment

Course(s)

This observation refers to the entire discipline and doesn't go down to course- or SLO-level.

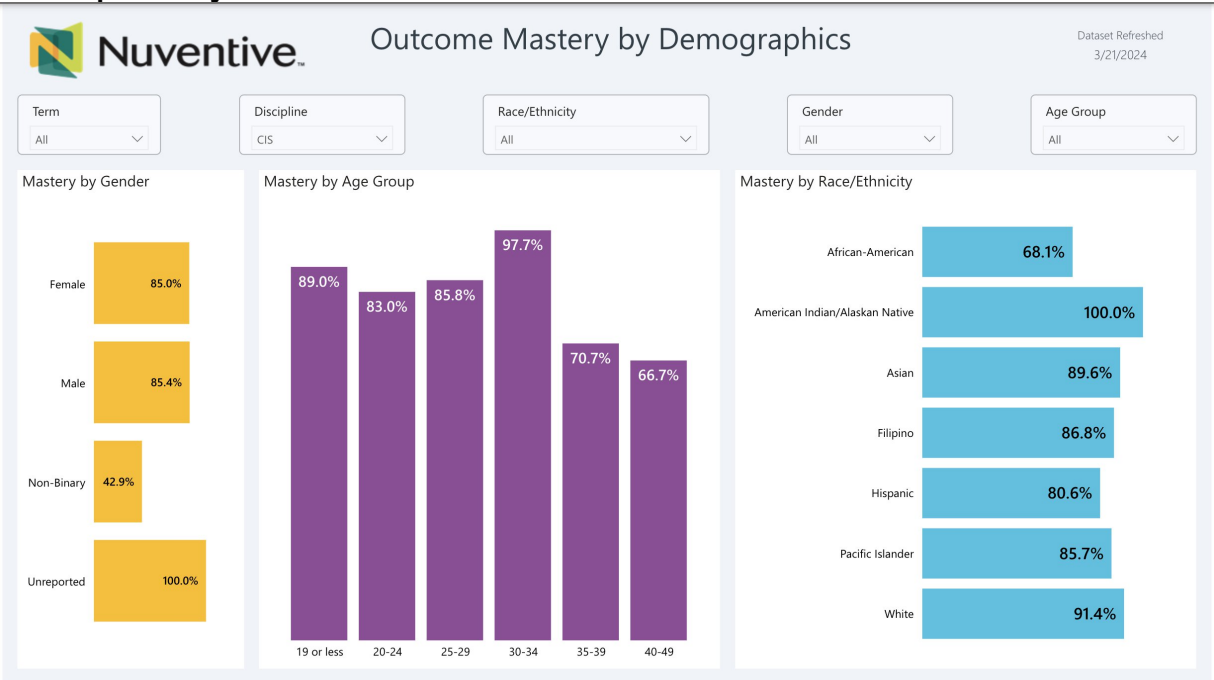
SLO(s)

This observation refers to the entire discipline and doesn't go down to course- or SLO-level.

Discussion/Analysis

The data demonstrates that there is a gap in outcome mastery among genders, with the most significant gap being demonstrated by non-binary students. However, this gap is affected by the low sample size of non-binary students and therefore the data for this particular subgroup is inconclusive. Between female and male students, there is almost no statistical difference in outcome mastery, indicating that the department should focus on closing demographic gaps in other areas and increasing sample size for more conclusive analysis. The data also demonstrates some gap in outcome mastery between different age groups. The data demonstrates a smaller gap in students ages 19 and below, which may indicate that concurrent enrolled students achieve a high level of mastery. Students ages 20-24 demonstrate a larger gap, with the gap decreasing significantly in students ages 25-29 and 30-34. The gap then increases significantly for students ages 35-49. This may suggest that students entering Norco college after high school achieve a lower master level than students who started classes at Norco while concurrently enrolled. The data demonstrates that there is a gap in outcome mastery among race/ethnicity. However, there are many groups with significantly small sample sizes, which renders the data largely inconclusive.

Please paste any relevant screenshots here.



Please add any relevant documents here.

Outcome Mastery by Demographic.png

Resource Requests

Faculty Professional Development Requests

Faculty Hiring Resource Requests

Program Review Reflections

What would make program review meaningful and relevant for your unit?
Program review is most meaningful and relevant for the CIS unit when it provides actionable, disaggregated data that directly informs our teaching practices, program development, and equity-focused improvement efforts. The availability of the Power BI dashboards (Program of Study and SEP, Success and Retention, and Program Awards) has been a significant step forward in making program review data-driven and accessible to faculty. The ability to filter data by discipline, demographic group, and time period allows us to identify specific equity gaps and track progress toward closing them over time.
The process is particularly valuable when it prompts genuine, critical reflection on equity gaps and leads to concrete, measurable action plans rather than vague aspirational goals. For CIS specifically, having data that distinguishes between the Computer Science, Computer Programming, Computer Applications, and Computer Maintenance and Security tracks would help us better target our improvement efforts, as each program serves a different student population with different needs, career goals, and challenges. Currently, the aggregate CIS data in Power BI combines all programs, which can mask significant differences in outcomes across tracks.
Program review becomes most relevant when it is connected to tangible resources and support for implementing the changes identified through the review process. For example, when the data reveals that African American male students succeed at only 52.8% compared to the 66.8% discipline average, the program review process should not only document this gap but also connect faculty with professional development, funding, and institutional support to address it. The recently renovated STEM Center is an excellent example of institutional investment that directly supports program review goals, providing accessible tutoring spaces, assistive technology, and collaborative learning environments that serve students equitably.
Additionally, program review is most meaningful when it incorporates student voice and perspective, particularly from students in underrepresented groups who can provide insight into the barriers they face and the support they need. The process should also be streamlined and efficient, respecting faculty time while still maintaining the depth of reflection needed to drive genuine improvement. The integration of equity and accessibility considerations throughout the program review process, rather than as separate add-ons, ensures that these critical priorities are central to all program planning and decision-making.

What questions do we need to ask to understand your program plans, goals, needs?
To truly understand the CIS program's plans, goals, and needs, several critical questions must be explored through the program review process, each of which connects directly to the equity gaps and accessibility concerns identified in our Power BI data analysis:
What specific barriers do underrepresented students face in CIS programs, and how do these barriers differ across demographic groups (African American, Hispanic/Latino, female, non-binary, first-generation, low-income)? Understanding these barriers requires not only quantitative data but also qualitative input from students themselves about their experiences navigating CIS courses and programs.
How can we better track the impact of outreach efforts on enrollment diversity, and what metrics should we use to measure whether our recruitment strategies are reaching underrepresented populations? The Power BI data shows persistent gender and racial imbalances in CIS enrollment, but we need tools to connect outreach activities to actual enrollment outcomes.
What resources would most effectively support student completion of degrees and certificates, given that the Power BI Program Awards dashboard shows only 123 degrees and 19 certificates conferred over five years, with significant disparities by race and gender? Are there specific support services, course scheduling patterns, or advising strategies that would increase completion rates for underrepresented students?
How can we address the alarming 74% Ed Plan non-completion rate among CIS students, as revealed by the Power BI Program of Study and SEP dashboard? What are the specific reasons CIS students do not complete Ed Plans, and how can we remove barriers to Ed Plan completion while ensuring that the process is accessible to all students, including those with limited English proficiency or disabilities?
What strategies are most effective for closing the success gap for African American students in computing disciplines, given the 14-percentage-point gap between African American male success rates (52.8%) and the discipline average (66.8%)? What evidence-based interventions have worked at other institutions, and how can they be adapted for the CIS context at Norco College?
How can the program ensure that all courses and program resources are fully accessible to students with disabilities, and what role should the recently renovated STEM Center play in providing accessible learning

environments and assistive technology for CIS students? What additional accessibility improvements are needed in our online course materials, lab environments, and tutoring services?

What types of data do you need to support your program plans, goals, needs?

The CIS program needs several types of data to effectively support its program plans, goals, and needs, with a particular emphasis on data that enables equity-focused decision-making and accessibility improvements:

First and foremost, we need discipline-specific CIS data that is easily filterable in the Power BI dashboards, including success rates, retention rates, and awards data disaggregated by ethnicity, gender, age, and modality (online, hybrid, face-to-face). The current Power BI dashboards provide valuable aggregate data, but the ability to drill down into specific CIS programs (Computer Science, Computer Programming, Computer Applications, Computer Maintenance and Security) would be extremely valuable for identifying which programs within the discipline have the greatest equity gaps and where targeted interventions are most needed.

Year-over-year trend data for at least 5 years would be most helpful for identifying patterns and measuring the impact of program changes and equity interventions over time. The ability to track whether specific initiatives, such as the implementation of culturally responsive pedagogy or the expansion of STEM Center tutoring, are correlated with improvements in success and retention rates for targeted populations would be invaluable for data-driven decision-making.

Additionally, data on Ed Plan completion rates by discipline would help us track progress on this critical metric, given that the current Power BI data shows 73.89% of CIS students lack any form of educational plan. We need to be able to monitor whether our efforts to increase Ed Plan completion are having a measurable impact, and whether improvements in Ed Plan completion are correlated with improvements in success, retention, and award attainment.

Course-level success data by modality (online, hybrid, face-to-face) would be particularly valuable for understanding where students struggle most and for making informed decisions about course scheduling, delivery methods, and support services. This data should be disaggregated by demographic group so that we can identify whether certain modalities are more or less accessible and equitable for different student populations. For example, if African American male students succeed at significantly lower rates in online courses compared to face-to-face courses, this would inform our approach to course scheduling and support.

Data on student utilization of support services, particularly the STEM Center, tutoring, counseling, and disability services, disaggregated by CIS discipline and demographic group, would help us understand whether underrepresented students are accessing available resources and whether there are barriers to access that need to be addressed. This data would also help us measure the effectiveness of our referral strategies and determine whether students who use support services have better outcomes than those who do not.

Finally, we need access to labor market data and industry trends for the Inland Empire region to ensure that our CIS programs are aligned with employer needs and that we are preparing students for careers that offer equitable wages and opportunities for advancement. This data would help us make informed decisions about curriculum development, program offerings, and career pathways that serve the diverse needs of our student population.

If there are any supporting documents you would like to attach, please attach them here.

Submission

All parts of my Program Review have been completed and it is ready for review.

Yes