Study of Dual Enrollment Opportunity

A report to the North Carolina State Board of Education and the North Carolina General Assembly

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Section I: Introduction and Background

North Carolina has a long history of supporting dual enrollment—college courses taken by high school students. Dual enrollment has a positive impact on students, including increasing their likelihood of going to and graduating from college.[1]

As part of the 2021-22 budget, the North Carolina General Assembly authorized a third-party examination of two issues:

1. "The factors impacting all students' ability to complete high school courses leading to college credit, an associate degree, or a career-ready credential, including an examination of opportunity, resources, fees, and personnel."
2. Alignment of dual enrollment courses used to satisfy high school graduation courses. "The study shall identify if dual enrollment courses are or are not aligned with the Standard Course of Study and, if not aligned, what content or skills are not aligned."

The full Legislative Charge is included as Appendix A.

The report begins with a brief overview of Career and College Promise (CCP), North Carolina's dual enrollment program and a short overview of the methods used (Section I). Section II describes key factors associated with student access to and success in dual enrollment courses. Section III presents the findings about alignment.

Career and College Promise

North Carolina began providing high school students access to college courses in 1983. In 2005, North Carolina further expanded access by authorizing and funding the formation of Cooperative Innovative High Schools (often known as early colleges). These small schools operate in conjunction with higher education partners with the goal of providing students with both a high school diploma and associate degree or two years of college credit. By 2010, approximately 24,000 students were enrolled annually in some version of dual enrollment in North Carolina. At that point, both the NC Community College System (NCCCS) and the North Carolina General Assembly became concerned with clarifying varying state statutes and ensuring that students were successful in and benefiting from these courses. The CCP legislation was passed in 2011 to address some of these concerns. The initiative consolidated the different authorizing legislation for North Carolina's dual enrollment programs and, in the process, made two primary changes: (1) it created three distinct course pathways to ensure that students focused their coursetaking and (2) it codified eligibility criteria for students to participate in the pathways (described below). Courses in the first two pathways are available

[1] An, B.P. & Taylor, J. (2019). A review of empirical studies on dual enrollment: Assessing educational outcomes. In M. B. Paulsen & L. W. Perna (Eds.), *Higher education: Handbook of theory and research* (pp. 99–151). Switzerland: Springer. Institute of Education Sciences. (February, 2017). *Dual Enrollment Programs: What Works Clearinghouse Intervention Report.* https://ies.ed.gov/ncee/wwc/interventionreport/671

at community colleges while the third pathway is associated with both two- and four-year institutions. The three pathways are:

1. **College Transfer Pathway.** Offered to North Carolina high school students who would like to continue their academic career at a four-year institution, the pathway includes college credit transfer courses in English, mathematics, and a college transfer success course. After the student completes the College Transfer Pathway courses, they may enroll in a course of study leading to an associate degree. Students must meet certain criteria to be eligible to participate in this pathway including: (1) be a high school junior or senior and (2) have an unweighted high school grade point average (GPA) of 2.8[2] in high school courses or demonstrate college readiness on an assessment or placement test or through an alternate means that includes a stricter GPA requirement and written approval of the principal and community college president. Students must continue to meet eligibility criteria to continue to participate in the pathway.
2. **Career Technical Education (CTE) Pathway.** This pathway is for students who would like to earn a certificate or diploma aligned with a high school career cluster. It is primarily for high school juniors and seniors; eligible 9th- and 10th-grade students can participate in a limited set of programs such as engineering. Eligibility for participation in the pathway differs by grade but includes an academic criterion (a 2.8 unweighted GPA or the approval of the principal) and the need to be informed about the pathway requirements. Students must continue to meet eligibility criteria to continue to participate in the pathway.
3. **Cooperative Innovative High School Pathway (CIHS).** Cooperative Innovative High Schools are small schools of choice, frequently located on college campuses, that provide students with the opportunity to graduate from high school while they complete an associate degree program or earn up to two years of college credit within four to five years. These schools include early colleges and theme-based schools that operate similarly to early colleges. According to legislation, the schools are required to primarily serve students who are at risk of dropping out, would be the first in their family to complete college, or would benefit from accelerated academic instruction. As of August 2021, North Carolina had 133 of these schools.

For all three pathways, the college courses are provided tuition-free; the costs of textbooks, fees, and transportation must be borne by either the student or the school/district, depending on decisions made at the local level. Textbooks and fees are almost always covered for CIHS students.

CCP is overseen by collaborative teams that include membership from the North Carolina Department of Public Instruction (NCDPI), the NCCCS, the University of North Carolina (UNC)

[2] In the 2019-20 school year, the GPA requirement was reduced to 2.8 from the previous requirement of 3.0.

System and the North Carolina Independent Colleges and Universities. The teams meet regularly.

Although North Carolina had a long history of offering dual enrollment, CCP represented a shift to a more focused vision. The eligibility criteria were intended to ensure that students who took dual enrollment courses were likely to succeed, while the pathways structure was intended to ensure that students' college coursetaking was focused in a way that would allow students to move toward a credential or degree.

Study Methods

The study was conducted by the SERVE Center at the University of North Carolina at Greensboro.[3] To explore the factors impacting students' ability to complete college courses, the study team analyzed participation data from NCDPI and the NCCCS for 12th graders in the 2019-20 school year. The research team conducted a survey of college, district, and school staff that asked respondents to describe attitudes toward CCP, supports provided for CCP, and potential barriers to student participation and success. The research team received 295 survey responses from individuals representing 72 districts, 45 community colleges, and an estimated 113 high schools. These data were supplemented with insights from 204 interviews with students and college, district, and school staff, which were collected as part of a different study. To examine course alignment, the researchers obtained state-level guidance for both the high school and college courses and created matrices showing the alignment between high school courses and the college courses that satisfy their subject requirement. Additional detail about the methods can be found in Appendix B.

[3]The research team would like to acknowledge the assistance of a team at RAND Corporation.

Section II: Factors Associated with Student Completion of College Courses

To have high school students successfully complete college courses requires that (1) students have access to courses and (2) once students are enrolled in the courses, they are able to pass them. This section of the report begins with a discussion of the quality of the partnership between the college and the high school, which is critical for the success of CCP. The section then discusses factors that affect students' *access* to and *success in* dual enrollment courses.

Secondary-Postsecondary Partnership

Dual enrollment, by its very design, cuts across the secondary and postsecondary education systems. Therefore, the quality of the partnership between the college and the high school/district is arguably the most important factor for ensuring that students have access to and can successfully complete college courses. A core part of this partnership is the level of commitment that the partners have around CCP. According to the survey, most respondents believed that their leadership was supportive; only 17% of respondents indicated that they lacked supportive leadership, and this had a negative impact on CCP participation.

The survey asked a core set of questions about the extent to which different entities were supportive of expanding CCP options. As shown in Table II-1, perceptions of commitment to CCP differed by entity. Groups generally reported their own leadership as more supportive than outsiders perceived it to be, with the greatest disparity being for district leaders. A large percentage of district respondents agreed or strongly agreed that district leadership was supportive, while college and comprehensive high school respondents did not perceive the district leadership to be as supportive. Overall, CIHS respondents reported the highest level of commitment among their own leadership and their own school staff members. All respondents saw the overall community as generally supportive of CCP.

> *If the administration is on board as well, that's really key. Because that kind of trickles down into the culture of the whole school if the principal is on board.*
>
> *—College Liaison*

Table II-1: Support for CCP

Question	Percentage Agree or Strongly Agree			
	College Respondents (n = 55)	*District Respondents (n = 86)*	*Comprehensive High Schools Respondents (n = 72)*	*CIHS Respondents (n = 48)*
District leadership is supportive of expanding CCP options to all eligible students.	47.3	90.7	69.4	75.0
On average, **school leadership** is supportive of expanding CCP options to all eligible students.	40.0	77.0	75.0	93.8
College leadership is supportive of expanding CCP options to all eligible students.	81.8	80.5	71.4	83.3
Most school staff members have a positive attitude toward CCP.	69.1	52.9	52.1	83.3
Students and families value the opportunity to take CCP courses.	90.9	88.5	70.8	77.1
Our community believes that dual enrollment opportunities are important for students.	78.2	80.0	79.2	93.8

It is worth noting that just close to half of district and comprehensive high school respondents disagreed that most school staff members have positive attitudes towards CCP. According to the interviews, there were three primary factors that could create a potentially negative staff attitude towards CCP: (1) how students have done in CCP courses in the past; (2) perceived competition of CCP with other advanced courses, such as AP; and (3) a perception that CCP is a mandate with a lot of paperwork that is not necessarily a priority for their school or is not their responsibility. Such attitudes seem to be both a contributor to, and a consequence of, weaker partnerships between the high schools and college. The level of buy-in and priority placed on CCP were generally associated with the overall quality of the partnership.

Insights from the research with CCP and similar programs show that, in a high-quality partnership, the actions of college and school staff were coordinated to serve the needs and interests of the students, aimed at their success in dual enrollment courses and fulfilling their high school graduation requirements.[4] Districts and schools with a strong commitment to dual enrollment were intentional in building their partnership with the local college in order to

[4] For research from another state, see Coyle, V., Edmunds, J., Grebing, E. & Rosof, L. (2021). Keys to Success: Relationships and Adaptability. Lessons Learned about Secondary-Postsecondary Partnerships from the College and Career Readiness Expansion Project. Available at: https://earlycollegeresearch.uncg.edu/wp-content/uploads/2022/04/SER21002_Keys-to-Success_Policy-Brief_FINAL_8_3_21.pdf

reduce barriers for students and create conditions to ensure student success in college courses. Partners coordinated recruitment activities so that students and families were well informed, and students were matched with the right courses or pathways. Partners effectively communicated with each other so that school staff could monitor student performance in the courses. Both the district/school and the college were invested in improvement of dual enrollment and equally participated in decision-making affecting high school and college operations. Partners worked together to reduce logistical barriers, adjusting their calendars and schedules, and in some cases, providing transportation for students. The college worked with the school on selecting the least expensive textbook options, and the district may have provided funding for the textbooks. See the text box for an example of how a strong CCP partnership has resolved scheduling and transportation issues that can keep students from participating.

> *Our college is very amicable about offering high school-only sections of classes and programs…[courses that] are specifically designed for high school students to have priority first. Those courses run from 1:00 until about 2:30 in the afternoon, Monday through Friday, and that is what allows us to be able to run a shuttle system from our 10 comprehensive high schools, to be able to bus students over, because they're all running at the same time.*
>
> *—District Coordinator*

In contrast, weaker partnerships were characterized by insufficient communication and lack of coordination in decision-making between high school and college staff. In a weaker partnership, the college may have simply perceived high schools as an additional source of students without consideration of the specific needs of these students and high schools' responsibilities for these students. This sometimes led to a lack of communication about the best courses for students or policies that might keep students from being successful. In a weaker partnership, there may have been minimal attempts to reduce the logistical barriers that can make it harder for students to participate. Additionally, staff may not have been as informed about CCP and therefore not able to provide high-quality advising, as discussed later in this report.

The survey asked questions about the quality of the partnership between the college and the district. As shown in Table II-2, up to three quarters of respondents agreed or strongly agreed that the partnership was collaborative. However, only about half of the respondents agreed that district and school leadership had sufficient input into CCP decision-making, and slightly more than half of respondents agreed that members of the partnership met frequently.

Table II-2: Quality of College-District Partnership

Question	Percentage Agree or Strongly Agree			
	College (n = 55)	*District (n = 83)*	*Comprehensive High Schools (n = 66)*	*CIHS (n = 47)*
The CCP partnership between the district and the college is very collaborative.	70.9	78.3	63.6	70.2
Our partner college takes into account and accommodates the needs of high school students and staff.	69.1	65.1	50.0	59.6
District/school leadership has sufficient input into CCP decision-making to ensure effective implementation and student success.	56.4	55.4	41.5	61.7
We have a clear MoU for CCP programs in regular high schools that governs each entity's role.	66.7	70.1	NA	NA
College and district staff meet regularly to identify and address issues.	58.2	63.4	41.5	53.2

One of the primary documents underpinning the partnership is a Memorandum of Understanding (MoU). Survey respondents were asked to identify the extent to which specific factors should be present in an MoU. Table II-3 presents the components that respondents believed should be present in such an agreement, placed in order from most important to least important.

Table II-3. Recommended Expectations for MoU (n = 250)

MoU Component	% Not important	% Somewhat important	% Very important
Definitions of roles and responsibilities of school/district and college staff involved in CCP implementation.	0	10.8	89.2
District's and partner college's respective responsibilities for funding CCP components, including student fees.	0.4	11.6	88.0
Definition of student eligibility for enrolling in courses, including retention and probation policies.	1.2	11.6	87.2
Alignment of policies related to sharing of information, (e.g., FERPA, HIPAA).	0.8	13.1	86.1
Alignment of policies for students with disabilities.	1.6	13.1	85.3
Alignment of CCP course withdrawal policy.	1.6	13.8	84.6

MoU Component	% Not important	% Somewhat important	% Very important
Adjustments of calendar and daily schedules to accommodate CCP students, including adjustments for state testing dates.	2.0	16.8	81.2
Agreement on the process for selecting and funding textbooks for students.	4.0	15.3	80.6
Alignment of policies for discipline and attendance.	2.4	18.8	78.8
Grading: how college grade scale converts to high school scale.	3.2	19.3	77.5
General list of courses or pathways to be offered.	4.4	18.4	77.2
Provisions for regular meetings and communications among both partners' leadership teams.	1.2	26.5	72.3
Allocation of classroom space for CCP courses.	6.0	30.9	63.1

Access to CCP Courses

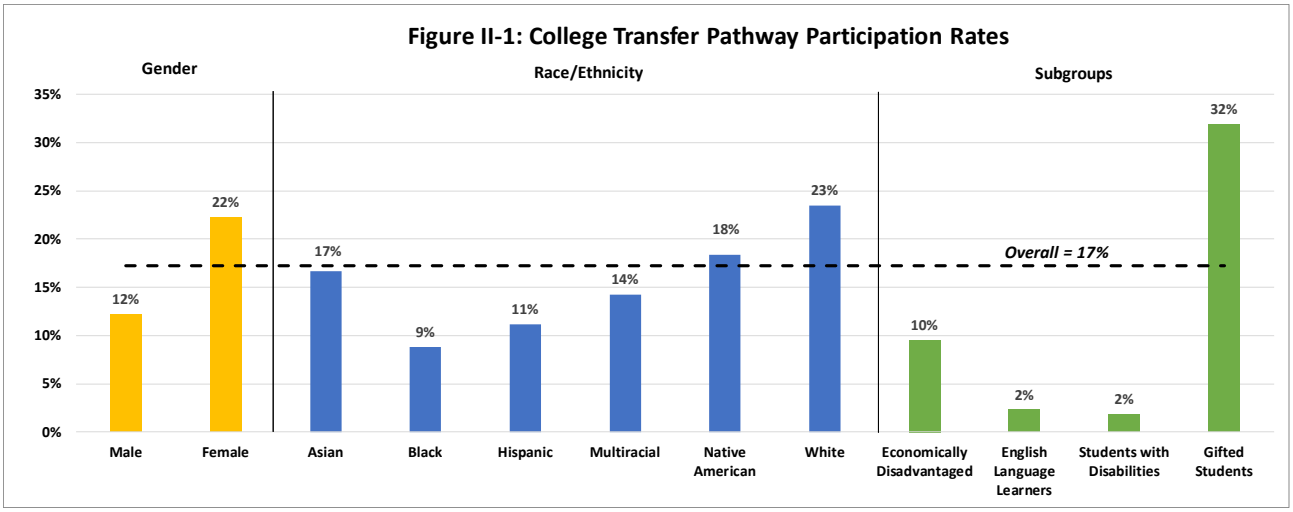
To examine access to courses, the research team examined (1) the characteristics of students participating in CCP and (2) the characteristics of schools associated with higher and lower levels of participation. The research team also explored some of the implementation factors associated with access to courses.

What are the characteristics of students who participate in CCP?

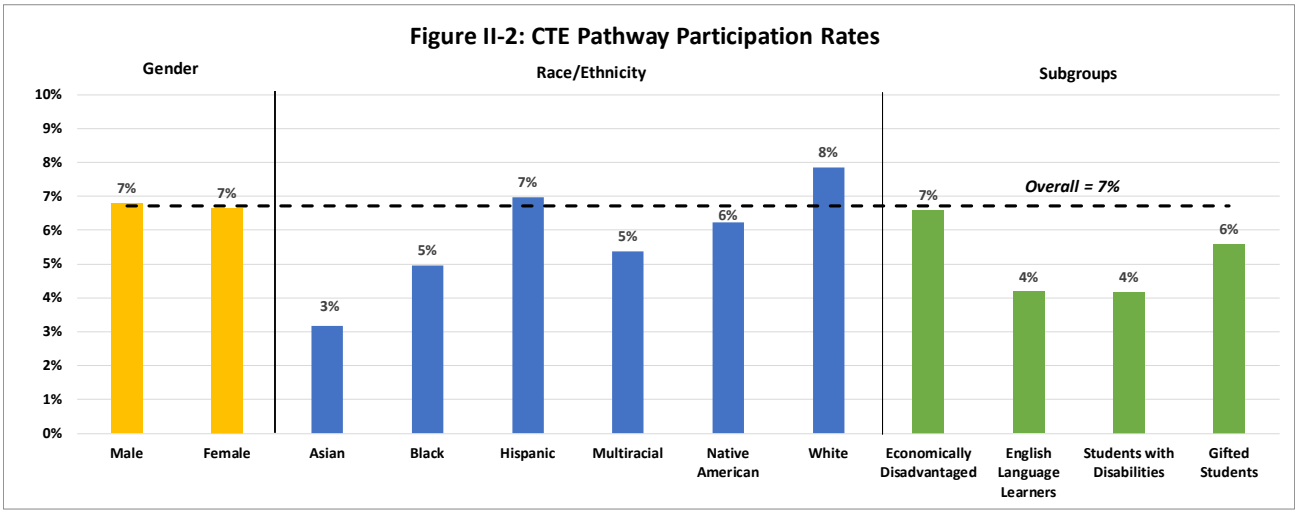
Twenty-eight percent of 12th graders[5] participated in CCP in 2019-20, with the characteristics of participating students differing by pathway. For all three pathways, however, students with disabilities and English Language Learners participated at substantially lower rates, particularly in the College Transfer and CIHS Pathways.

College Transfer Pathway. Approximately 17% of 12th graders in public schools were enrolled in the College Transfer Pathway in 2019-20. Figure II-1 shows that these students were more likely to be female, white, and not economically disadvantaged. Of the three pathways, this pathway has the largest disparities in participation. For example, female students were nearly twice as likely to participate as male students, and white students participated at a rate 2.5 times higher than Black students. Native American students, however, participated at a level slightly above the average participation rate.

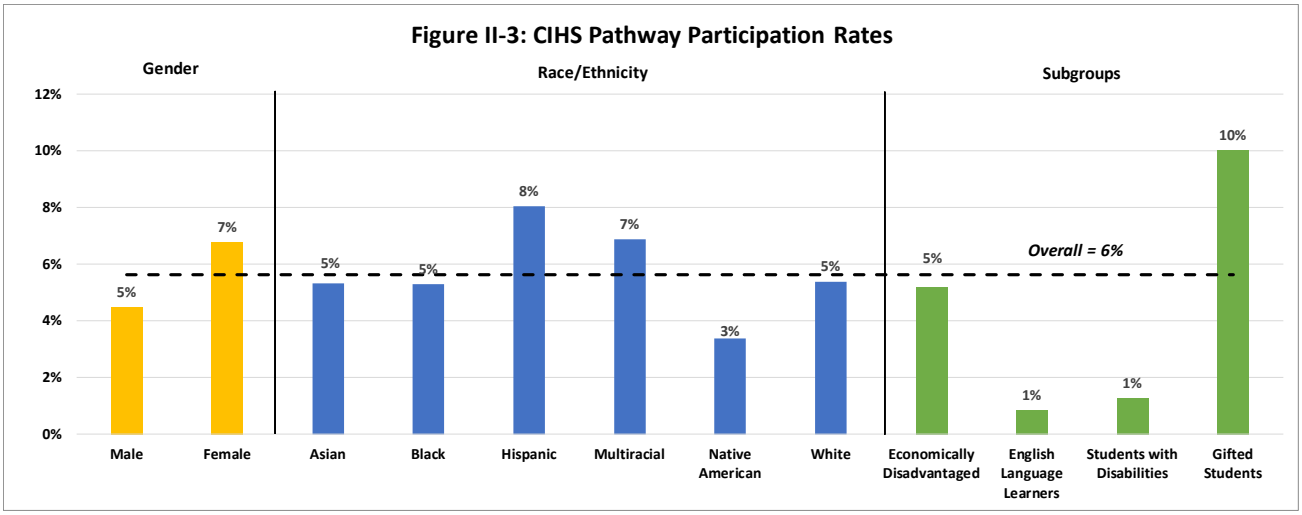
[5] We obtained demographic data from NDCPI; the statistics in this report included only students enrolled in public schools (including charter schools) and did not include homeschooled students or students who enrolled in a NC public high school only in 12th grade. Some students enrolled in more than one pathway.



CTE Pathway. Approximately 7% of 12th graders in public schools were enrolled in the CTE Pathway in 2019-20. As shown in Figure II-2, this was the only pathway that had equal participation by gender. The disparities between the participation rates of different racial and ethnic groups were not as great, and economically disadvantaged students participated at the average rate. This pathway also had the highest participation rates for students with disabilities and English Language Learners.



CIHS Pathway. Approximately 6% of 12th graders in public schools were enrolled in the CIHS pathway. Figure II-3 shows that female students participated at a higher rate than male students but that participation among racial/ethnic groups and economically disadvantaged students were fairly equitable. This is likely driven by the legislative charge that helps ensure that CIHS are intentionally targeted to underserved populations; as such, CIHS often do outreach to those populations.



What school-level characteristics are associated with student participation in CCP?

Analyses of CCP participation rates in regular public high schools[6] show that student participation was related to two primary school-level factors: (1) *locale*, or whether a school was in an urban or rural area; and (2) the *share of underrepresented minority* students in the school. For these analyses, underrepresented minority students are those students who are members of racial and ethnic groups that have been historically underrepresented in postsecondary education: Black, Hispanic, Multiracial, and Native American students. These patterns of participation based on locale and percentage of minority students were the same regardless of the pathway. We also saw differences based on school size and economic tier of the county, although these seem to have been driven primarily by the locale. There was no clear pattern of differences in participation as a result of other factors such as the rate of economic disadvantage in a school or the average level of academic achievement of the school.

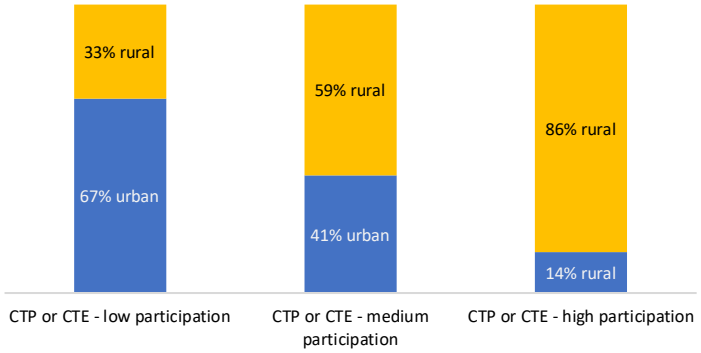
Locale. Schools in rural settings were more likely to have higher participation rates than schools in urban areas. The average school in rural areas and small towns had a 35% participation rate for 12th graders in either the College Transfer (shown as CTP in the chart) or CTE Pathway, which is more than twice that of schools in suburban or urban areas (36% vs. 16%). This may be driven in part by the fact that rural schools sometimes lack the resources to provide other advanced courses, such as Advanced Placement or International Baccalaureate, in the same way as more urban schools. A survey respondent made this point,

> We feel that this program is extremely needed in counties like [ours] where we are unable to offer AP or IB classes. This program gives our students the chance at taking college-level classes that they would not be able to take otherwise.

[6] We excluded CIHS from the school-level analyses because all students in those schools take dual enrollment courses. We also excluded charter schools and alternative schools from the school-level analyses.

As shown in Figure II-4, 33% of schools with low participation[7] in the College Transfer and/or the CTE pathways were in rural areas; in contrast, 86% of the schools with high participation in the CCP pathways were in rural areas.

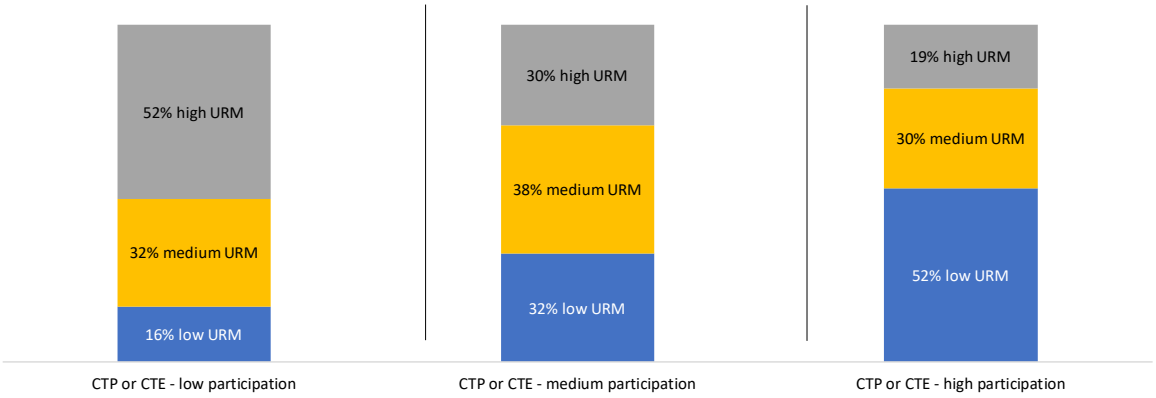
Figure II-4: CCP Pathway Participation by Locale



The locale of the school was also related to other observed patterns —for example, smaller schools were more likely to have higher CCP participation rates. Additionally, there were higher rates of participation in Tier I counties (more economically disadvantaged), likely because these tend to be rural counties.

Proportion of underrepresented minority students. Schools with higher percentages of underrepresented minority students had lower levels of CCP participation; this held true no matter where the schools were located. In both rural and urban settings, schools with higher percentages of underrepresented minority students had lower participation rates. As shown in Figure II-5, 52% of schools with low CCP participation had high proportions of underrepresented minority students[8] compared to only 19% of schools with high CCP participation.

Figure II-5: CCP Participation Rates by % Underrepresented Minority



At this point, the data do not provide a firm explanation for the difference in participation rates by percentage of underrepresented minority students, but this merits further study.

[7] Low CCP participation rates refer to schools with CCP participation rates of less than 17%, medium participation refers to schools with participation rates between 17% and 36% and high participation refers to schools with more than 36% participation rates.

[8] Low underrepresented minority rates are schools with less than 32% minority students; medium is schools with between 32 and 59% minority population; and high are schools with more than 59% minority students.

Participation rates by college. CCP participation rates also differed by college. In looking at the percentage of 12th graders participating in any of the three CCP pathways within a community college's service area, participation rates varied from 10% to 73%. Appendix C presents a table listing detailed participation rates by community college for each pathway. An additional table presents participation rates by student demographic characteristics at each college. Analyses of college-level factors associated with participation indicate that locale and size were the primary predictors of participation rates, whereby colleges with smaller, more rural service areas were more likely to have higher participation rates.

Charter school participation. Charter school participation rates also varied widely, with rates ranging from a low of 0% to a high of 100%.

What implementation factors are associated with participation in CCP?

In interviews and surveys, students and college, district, and school staff provided insight on factors they believe affected student access to dual enrollment courses. The primary factors identified were: (1) recruitment and awareness, (2) personnel, (3) financial factors (including fees), (4) scheduling and other logistics, (5) course availability, and (6) district and college policies. These factors, which are discussed in more detail below, can operate as either barriers or facilitators to participation. For example, having to pay for textbooks can be a barrier that keeps students from participation; on the flip side, if a district pays for textbooks, that may facilitate participation.

It is important to note that some of these factors are more easily influenced by state policies than others.

Recruitment and awareness. One possible reason for non-participation in CCP is a lack of awareness about the program. On the survey, 47% of respondents indicated that lack of students' awareness of CCP was a factor that impacted participation. This theme was also present in open-ended comments from survey respondents; one said a significant barrier was "poor promotion and lack of general understanding by high school staff members, students, and parents." This was supported in interviews with students and staff. For example, one principal acknowledged, "I just have to think lack of information is the biggest obstacle. If all they know about it is what I say on the announcements, then they don't know much."

> *I didn't know [about CCP], no one sat down with me.*
> *—Eligible non-participating student*

Table II-4 shows that less than half of the college, district, and comprehensive high school respondents agreed that all students and families were well informed about CCP. Approximately half of the district and comprehensive high school respondents indicated that students were required to create a plan that included the option for CCP courses.

Table II-4: Level of CCP Awareness

Question	Percentage Agree or Strongly Agree			
	College (n = 55)	*District (n = 92)*	*Comprehensive High Schools (n = 72)*	*CIHS (n = 48)*
All students and families are well informed about CCP opportunities.	29.1	35.9	38.9	58.3
School staff (counselors, teachers, administrators) encourage all eligible students to participate in CCP.	18.2	48.9	70.8	70.8
Our district requires that all 9th graders have a 4-year plan, the development of which includes discussion of CCP pathways.	--	44.8	45.8	63.8

High-quality advising and recruitment can increase student participation. An effective awareness campaign includes a mix of broad-based dissemination strategies—such as automated phone calls, mailings, school announcements, and electronic communication—coupled with more personal and individualized advising.

The timing of these conversations is also important. Having 9th graders complete a four-year coursetaking plan, which includes the discussion of CCP pathways and eligibility requirements, gives students an opportunity to consider and set their goals and prepare to implement them. Beginning such a discussion in middle school, as it is done for the CIHS, creates even more opportunities for success. For example, in interviews with eligible, non-participating CCP students, several indicated that they did not take any CCP courses because by the time they had learned about CCP options, it was too late to earn a meaningful number of credits.

The survey provided data about when colleges, districts, and schools shared information with students about CCP and how advising works. As shown in Table II-5, district respondents reported that the awareness activities increased as students got older, with middle school students receiving the lowest level of outreach. Mass communication efforts tended to go out to all students, while more individualized advising was done either with all students or eligible students only.

Table II-5. Types and Timing of Awareness Activities (District respondents only) (n = 93)

Timing	Mass Communication			Group presentation			Individualized advising		
	No Students	*All Students*	*Eligible students only* [a]	*No Students*	*All Students*	*Eligible students only*	*No Students*	*All Students*	*Eligible students only*
Middle school	43.3	40.0	16.7	27.0	48.3	24.7	47.7	20.9	31.4

Timing	Mass Communication			Group presentation			Individualized advising		
	No Students	*All Students*	*Eligible students only* [a]	*No Students*	*All Students*	*Eligible students only*	*No Students*	*All Students*	*Eligible students only*
9th grade	17.8	52.2	30.0	18.5	54.3	27.2	18.2	35.2	46.6
10th grade	5.5	69.2	25.3	6.4	68.1	25.5	4.4	46.2	49.5
11th–12th grade	3.2	81.7	15.1	2.1	76.6	21.3	3.3	57.1	39.6

[a] Eligible students may include all eligible students or only sub-groups of eligible students.

The approach taken by CIHS highlight the importance of engaging in intentional outreach to populations that will benefit from dual enrollment opportunities. These schools start outreach in middle school, and many of them seek to reach underserved students in out-of-school settings such as churches or after school programs.

Personnel. A high-quality dual enrollment program depends on the capacity of colleges and schools to implement the program. Capacity can be thought of in two primary ways: (1) the extent to which there are sufficient staff to implement the program; and (2) the extent to which those staff have the necessary motivation, knowledge, and training to support CCP.

Insufficient numbers of staff to provide advising and college course registration was identified as a key barrier in providing access to CCP. This barrier is much more common in districts and in comprehensive high schools than in CIHS, which tend to have a dedicated college liaison. Table II-6 shows the percentage of respondents indicating that insufficient counseling and advising support was a barrier.

Table II-6: Level of staffing as a barrier

Question	Percentage Agree or Strongly Agree			
	College (n = 55)	*District (n = 86)*	*Comprehensive High Schools (n = 66)*	*CIHS (n = 47)*
Insufficient staff to provide CCP advising.	69.1	55.8	40.9	27.7
Insufficient staff to provide assistance with college course registrations.	52.7	50.0	46.2	17.0
Challenges in coordination between different individuals providing CCP-related advising.	41.8	50.0	46.0	25.5

The table above shows barriers to participation. When asked to identify factors that would facilitate participation, 88% of respondents agreed or strongly agreed with the statement that having a college liaison or other dedicated individual would help expand access.

> *The biggest barrier I have is that I am the only person registering 160+ students per semester, and I already have a job that I do for the school system. It is nearly impossible to do this job and my normal job at the same time.*
>
> *—District survey respondent*

One survey respondent said, "Biggest barrier is manpower to help with class registration and planning. We need much more assistance from the college side with reviewing degree requirements and graduation for students. A dedicated college liaison would be a huge help."

In addition to having the appropriate number of personnel, capacity requires that those personnel have the knowledge they need to do their jobs. As shown in Table II-7, there were varying levels of agreement about whether respondents believed that leadership and counselors had sufficient knowledge and training to effectively implement CCP.

Table II-7: Staffing Knowledge and Supports

Question	Percentage Agree or Strongly Agree			
	College (n = 55)	*District (n = 91)*	*Comprehensive High Schools (n = 72)*	*CIHS (n = 48)*
School leadership and counselors have sufficient knowledge about CCP to implement the program.	41.8	67.0	69.4	83.3
Leadership has enough training and receives enough support to implement CCP program.	40.7	48.2	47.0	66.0
Leadership needs additional supports for CCP implementation.	49.1	35.7	33.3	38.3

In open-ended questions, survey respondents indicated the need for training for new staff and resources that can help reach non-English speaking parents.

An additional cautionary note about personnel: in recent interviews, school staff were aware of potential changes to state funding allocations that would distribute resources based on the number of teachers rather than the number of students. A district coordinator expressed concern that an unintended consequence of a change like this is that schools would reduce the number of students taking CCP courses to protect their teacher allotment,

> Depending on whether or how they change teacher allotments…I see that as the potential for it to become a barrier for school districts to have large amounts of students enrolling in CCP, because it's going to tie your hands in other places.

Financial factors and resources. Financial factors can both facilitate and hinder students' participation in CCP. Many students participate because of the potential financial savings, given that they could earn transferable college credits and/or credentials that could help offset future postsecondary education costs. A CTE pathway student said,

> College is very expensive…especially if you're wanting to go to a four-year college…being able to get those free college credits…it's so alleviating because me personally, I only have my dad, and I have five siblings, so there's a lot of us. So it's kind of, we're kind of tight with money. So, I've always worried about him stressing because he does want to help me out with college.

At the same time, school staff and students noted that paying for other aspects of CCP participation—textbooks, fees, transportation—created financial burdens that kept some students from participating. Fees can be particularly prohibitive for CTE pathways, where the students may need to pay substantial costs for program materials. The state covers the cost of tuition but, as Table II-7 shows, whether students have to pay for other costs differed by district and by school setting. For example, only a third of responding districts offered transportation for CCP students in comprehensive high schools; this is in contrast to almost all responding districts offering transportation for students in the CIHS pathway.

Table II-7: Supports Provided to Students by School Type (% districts)

Resources Provided	Type of School	
	Comprehensive High Schools (n = 66 districts)	*CIHS (n = 45 districts)*
Transportation to the college campus	32.3	93.3
Free or reduced-price college textbooks	57.6	90.9
Free course fees	66.7	88.9
Meals provided on college campus to students who qualify	18.8	84.4
Technology for online courses	95.5	93.3

Many survey respondents indicated that providing transportation and covering textbooks and fees would be key ways to expand access. One respondent said, "Transportation!!!! Students who do not have transportation cannot get to the campus. We are starting CCP courses in three HS campus in the fall to begin to address this barrier." Another noted, "Funding for books and fees would be huge. Sometimes students cannot participate in CCP because they cannot afford the books/fees, and we have limited resources to help." Similar themes were expressed in the interviews. For example, a district CCP coordinator expressed concern about the lack of funding for textbooks in particular, saying

> If I had a wish list…we want to be able to provide an affordable college experience for students. CCP is where that really starts, so let's just put the money there, not just with

> the tuition waivers, but let's also look at the textbooks, because that is a major equity issue for students in North Carolina. We have way too many Title 1 communities, and school systems cannot afford to pay for textbooks, not with the rising textbook costs. Either we need to figure out some contract, alliance for open resources with the different textbook vendors, or we need to figure out a way to fund textbooks in some way.

Scheduling and other logistics. Key logistical factors associated with accessing college courses include: (1) the difference between high school and college calendars and schedules; and (2) technology and space challenges with online course offerings.

High schools and colleges are not aligned in their calendars and the length of courses. Colleges usually start their classes a few weeks before the start of the high school semester, both in the summer and in winter, which means that students need to begin their college courses before high school starts and before high school staff would be available to monitor them. Moreover, many community colleges are shifting towards 8-week courses, which are about half a semester in length; this means that school staff need to figure out how to fill a students' time once the college course has ended or before it begins. The fact that most college courses meet 2-3 times a week, not every day, also creates a need for the school to take care of the empty spots in a student's schedule. Concerns about the calendar and the schedule were a frequent comment in the interviews and on the survey. As shown in Table II-8, approximately three quarters of college and district respondents indicated that scheduling and calendars were a barrier that had a negative impact on CCP participation. This issue was less significant for CIHS, although approximately half of CIHS respondents indicated that the mismatch between schedules posed a challenge.

Table II-8: Scheduling and Logistical Barriers to CCP Participation

Question	Percentage Indicating Situation was Present and had a Negative Impact on CCP Participation			
	College (n = 55)	*District (n = 85)*	*Comprehensive High Schools (n = 67)*	*CIHS (n = 48)*
Mismatch between high school and college calendars.	81.8	74.1	64.2	37.5
Mismatch between high school and college daily schedules.	69.1	76.7	67.2	50.0
Limited student access to technology/internet at home and/or at school.	69.1	54.7	43.3	41.7
Limited school space for online CCP courses.	38.2	41.9	37.3	23.4
Differences between college and district course systems/technology.	67.3	52.3	37.9	42.6

Survey respondents also provided comments that reinforced this idea. One respondent said, "Calendar flexibility is a very important aspect of increasing access to CCP coursework. Alignment between the HS calendars and CC calendars will allow for a seamless start time for all courses, which will alleviate the stress on teachers and students."

> *Align the calendars, and the biggest barrier will be gone. --District survey respondent*

Another logistical barrier is related to technology. At many schools, students took online courses on the high school campus and approximately a third of respondents suggested that there were challenges in finding space. Additionally, if students were allowed to take online classes outside of the school campus, access to computer and internet may have been an issue. The difference between college and high school online learning platforms created challenges as students learned new technology or as a mismatch between systems (including firewalls) may have made it hard for students to access resources. As shown in Table II-8 above, a majority of respondents at the college and district levels believed that limited access to technology and differences between technology systems posed barriers to CCP participation.

Course availability. The location, delivery method, and subject of courses also affect students' ability to participate in CCP courses.

As noted earlier, having to travel to a community college can make it harder for students to participate due to challenges around scheduling and transportation. This can be addressed by having students take college courses online or on the high school campus. In many other states, high school teachers that are qualified to teach as college faculty provide college course instruction on the high school campus. However, as shown in Table II-9, according to the survey, in North Carolina, having students take college courses on the high school campus, either taught by a college instructor or by qualified high school staff, was the least frequently mentioned approach. Two-thirds of district respondents had no students taking college courses with a qualified high school instructor. In contrast, online instruction was the most frequently used method.

Table II-9. Student participation in dual enrollment, by delivery method

Question	Proportion of students taking classes in different ways (District respondents[a]; n = 100)			
	None	*Less than 25%*	*Between 25%-75%*	*More than 75%*
Online	0.0	21.0	49.0	30.0
On college campus	2.0	41.0	46.0	11.0
On high school campus taught by college instructor	38.5	43.8	10.4	7.3
On high school campus taught by qualified high school instructor	68.1	18.1	8.5	5.3

[a]A district may have had more than one person respond.

There are advantages and disadvantages to the different approaches to coursetaking. For example, courses taught on the college campus provide the most authentic college experience but face the logistical challenges described earlier. Online courses can expand access to CCP by alleviating many of the logistical issues, but not all students thrive in an online environment. Having courses taught on the high school campus removes many of the logistical barriers and provides the opportunity for interpersonal interaction but may not provide the full college-going experience. Additionally, it can be challenging for high schools to offer CTE pathway courses, which often require expensive equipment.

Over 60% of survey respondents agreed or strongly agreed that participation would be improved if college instructors taught on high school campuses or if credentialed high school teachers taught college courses.

Another possible factor that appeared to affect students' enrollment were the specific courses that were available. Different colleges have different course options and different pathways. This was not as significant a concern as other barriers, but approximately a quarter of survey respondents reported that having too few CCP course options—or providing courses that were not aligned to students' interests—had some or a large negative impact on student participation. There were also restrictions on students' switching pathways, an issue identified by 37% of respondents as having some or a large negative impact on students' participation in CCP.

Additional policies and factors. There are other assorted policies and factors that can affect students' access to courses. One state-level policy is the weighting of the grades received in college-level courses. Courses on the College Transfer Pathway now receive the same extra weight for a student's GPA as Advanced Placement, which has encouraged students to take dual enrollment courses as they seek to increase their GPA. However, only courses on the Comprehensive Articulation Agreement receive additional weight, and 36% of survey respondents agreed or strongly agreed that this results in some students not taking CTE courses that they might otherwise have taken. A survey respondent noted, "There are many college CTE courses that far exceed the rigor expected in many UGETC courses [courses transferrable to a four-year college]. It is a shame that college CTE courses are not weighted accordingly."

In interviews, individuals identified cases where the district or college had additional policies that restricted access to CCP. These policies were usually implemented in an effort to ensure that students were more successful in college courses. For example, colleges or schools may restrict initial access to CCP courses by imposing additional eligibility requirements (such as 3.0 or 3.5 GPA instead of the state-required 2.8). They may also restrict subsequent access if students fail one or more CCP classes or restrict the number of CCP courses a student can take at the same time, which all could lead to decreased CCP participation but were intended to

ensure that the students who took the courses were successful. Other policies might include high schools restricting students' ability to leave the high school campus or requiring students to take a certain number of high school courses each year. The survey indicates that these individual policies were not necessarily widespread (23% of survey respondents noted that there were additional policies in place that had some negative impact), but they can affect students in that specific district or college.

A final factor that can affect student participation is a perceived competition between CCP and other advanced high school coursetaking options, such as AP. On the survey, half of respondents noted that school staff members worry about the competition between CCP and other advanced courses such as AP. In some cases, they may fear that teaching positions will be lost if too many students start taking CCP courses.

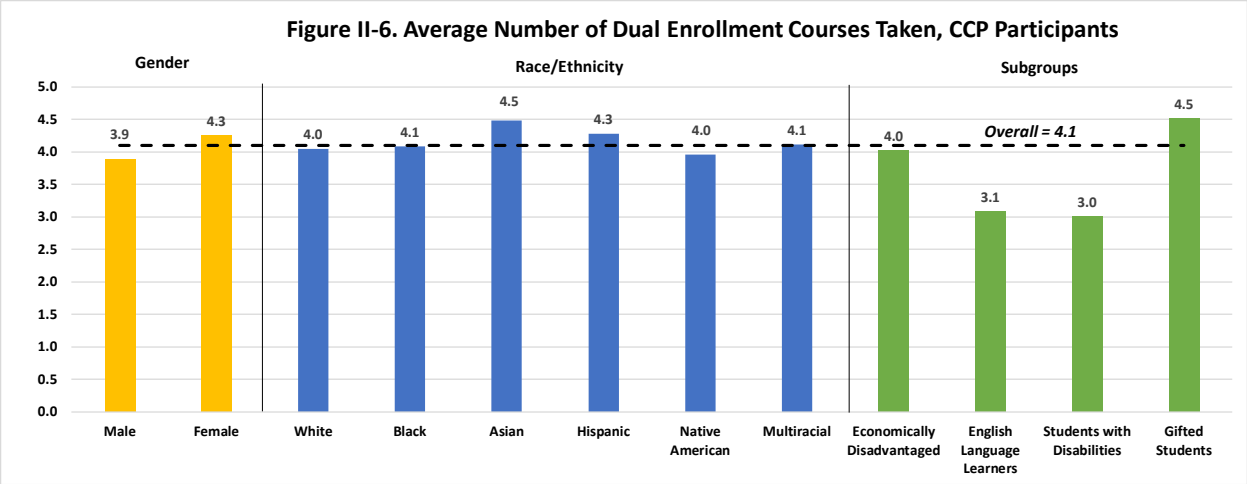
Success in CCP Courses

Access to CCP pathways is only part of the story. To benefit from the program wholly, students must enroll in dual enrollment courses, successfully complete them, and earn college credit. In this section, we describe how many college courses students are taking, how well students are doing in them, and then share factors that have been identified as affecting student success.

How well are students doing in CCP?

The research team looked at two measures of student success: (1) the number of courses that students took (which provides a measure of depth of participation); and (2) the success rate of students taking courses.

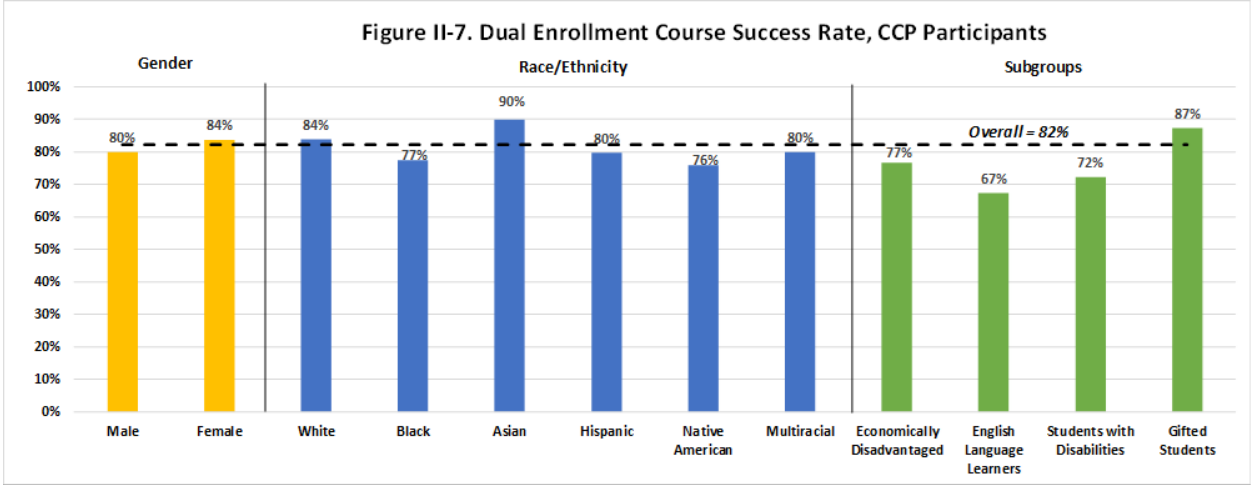
Courses taken. On average, 12th graders participating in CCP in 2019-20 took 4.1 college courses during their 12th-grade year. The number of courses differed by pathway, with College Transfer Pathway participants taking an average of 3.6 courses, CTE pathway participants taking an average of 3.3, and CIHS participants taking an average of 6.7. Interestingly, the disparities seen in pathway access did not exist to the same degree for the number of courses taken. This suggests that once students enrolled in CCP, they took similar numbers of courses. Figure II-6 shows the average number of CCP courses taken by specific sub-groups, including participants in all three CCP pathways.



Although the specific numbers differed for each pathway, there were similar demographic patterns across the three pathways with the exception of English Language Learners and students with disabilities in the CIHS pathway. In the CIHS pathway, those two groups of students took approximately half of the average number of courses, while in the other two pathways, they took over 80% of the average number of courses. It is important to remember that English Language Learners and students with disabilities also had the lowest participation rates of all the groups we analyzed.

Success rates. Looking across all CCP pathways, students did well, with an overall success rate (defined as earning a C or higher) of 82%; however, success rates did differ by pathway and by race/ethnicity. Both the College Transfer and the CIHS pathways had average success rates of 84%. The CTE pathway had the lowest overall success rate at 76%.

Success rates also differed by student characteristic. As shown in Figure II-7, female, White, Asian, and gifted students had the highest success rates. Across the pathways there were similar patterns of differences in success rates by demographic characteristic.



What factors affect student success?

Factors that affect student success in courses included: (1) students' readiness to take the course, (2) the supports students receive when they take the course, (3) the delivery method of the courses, and (4) district and college policies.

Students' readiness. As might be expected, student success in college courses is at least partly driven by the extent to which they have the necessary knowledge and skills. Eligibility requirements are intended to help ensure that students possess knowledge and skills but, to be functional, eligibility requirements must accurately measure what is needed to succeed in the class. If these eligibility requirements are not well aligned, then they can serve as an unnecessary barrier that keeps students from taking college courses. Many states have some type of indicator of college readiness that high school students must meet (e.g., a set GPA [as in North Carolina] or passing placement exams). North Carolina has recently modified the GPA requirement, and the research team would recommend an additional study to look at the impact of that change.

In past projects, the research team has looked at the issue of preparing students to be successful in college classes. The success of the CIHS model offers examples of what schools can do to get students ready to be successful.[9] Such strategies include: (1) using instructional practices that support critical thinking; (2) embedding writing and communication instruction across subjects; and (3) providing explicit instruction in academic behaviors such as time and organizational management, note-taking, and self-advocacy (i.e., the ability for students to advocate for themselves with college faculty).

Supports. Many high school students who take college courses need supports to be successful. This support can take many forms (e.g., tutoring), and dual enrollment students generally have access to all the supports provided at the college, such as the writing center. These supports can be useful, but it is unclear how much students take advantage of them.

A key factor for students' success in CCP courses is whether counselors and other school staff are able to monitor students' progress (including attendance, assignment status, and grades) in CCP classes on a regular basis. Schools vary on the frequency with which they receive data about students' performance in college courses, which depends on the quality of the secondary-postsecondary partnership. Based on interviews, it was evident that some schools were able

> *The lack of transparency and access to student systems that allow high school staff to progress monitor our students is problematic and creates a system where interventions are too little/too late.*
>
> *—District survey respondent*

[9] Edmunds, J.A., Arshavsky, N., Lewis, K., Thrift, B., Unlu, F., & Furey, J. (2017). Preparing students for college: Lessons learned from the early college. *NASSP Bulletin, 101:*2, 117-141.

to closely monitor student performance, while others only received students' grades after the semester was over. If the high school is not able to monitor students' performance in college courses, this can result in students withdrawing or failing classes. As one survey respondent noted, "Professors providing the high school with alerts is critical to student success." Table II-10 shows the extent to which specific factors were seen as contributing to student success.

Table II-10: Factors Affecting Student Success

Question	Percentage Indicating Situation was Present and had an Impact on Student Success			
	College (N=55)	*District (N=85)*	*Comprehensive High Schools (N=67)*	*CIHS (N=48)*
Academic supports provided by school staff for CCP courses.	57.4	63.9	68.7	85.4
Academic supports provided by college staff for CCP courses.	90.9	72.9	72.7	72.9
Data provided in a timely manner by the college to the high school about student performance while the student is taking a CCP course.	89.1	74.1	74.2	75.0

There are strong examples of colleges sharing data with high schools so that the high school can help the student be successful and intervene if necessary. Providing examples of such strategies may be useful for the secondary-postsecondary partnerships.

Course delivery method. The way in which a course is delivered can affect student success. As noted earlier, online courses are a double-edged sword. They are a key strategy for expanding access, but students can struggle to be successful in those courses. In focus groups, eligible non-participating students frequently noted that they did not want to participate in CCP courses if they were only offered online. In the interviews and the survey, many staff members commented that in-person classes were generally more conducive for student success than online courses, especially in certain subjects, such as math. Survey respondents noted that online courses required a level of responsibility, maturity, and study skills that many high school students have not yet developed. One individual on the survey said that a barrier was, "Too many online options, students are less successful in online setting." An interviewed counselor noted,

> I do think when it comes to them doing well in the classes, my kids who take it seated, obviously, always do better. Whether it's seated here or seated at [the college], they're more engaged, their grades are better…. Some of them are very successful [in online courses]. Some of them not as much because…they have to be self-motivated. They're not necessarily going to have an instructor who's going to hunt them down.

One way of helping students be more successful in online courses is to have an individual who monitors students and provides assistance if they need it. A majority (63%) of district survey respondents indicated that they had an individual who monitored students' online coursetaking, and this had an impact on student success.

District and school policies. One of the primary policies identified as affecting student success was the college withdrawal policy. One survey respondent commented on a challenge to student success:

> Course withdrawal policies allow students to be withdrawn almost to the last couple of weeks before the end of the high school semester, leaving the student with a hole in their schedule and not allowing us to place them in another class.

On the survey, most respondents (81%) noted that college course withdrawal policies had an impact on students' success in college courses.

Conclusion

There are a multitude of factors that affect high school students' access to and successful completion of college-level courses. Many of these are amenable to possible policy intervention. For example, formal MoUs that cover specific aspects of the secondary-postsecondary partnership could help clarify responsibilities and policies, possibly strengthening the relationship between institutions. District, school, and college staff throughout North Carolina identified specific resources and policies that would help expand access including: (1) ensuring that students and families receive information related to CCP; (2) having a dedicated staff member with time to focus on college advising and registration, such as a college liaison; (3) funding textbooks and fees; (4) reducing transportation barriers along with addressing class schedule misalignment; and (5) promoting alignment of college and high school calendars. Some of the logistical barriers (transportation, scheduling) could be addressed if the courses were offered on high school campuses. One of the key strategies to support student success is encouraging colleges to share coursetaking data in a timely manner so that high schools can monitor students' performance in college courses.

Section III: Curriculum Alignment

The study looked at state-level guidance for key high school courses required for graduation and the college courses that are intended to substitute for them. To conduct this work, the research team focused on state-level guidance that all schools and colleges are expected to follow; more specific levels of course detail, such as those offered by district pacing guides or college syllabi, would differ from institution to institution. At the high school level, NCDPI has developed detailed content standards that summarize learning expectations for students. At the community college level, NCCCS has developed overarching course descriptions that provide an overview of the content to be provided, delegating the creation of detailed learning objectives and syllabi to each individual campus.

Overall, there is a substantial difference in the level of detail between the two sets of guidelines. The high school standards are much more detailed; this occurs because high school is required of all students, and the state has articulated specific content expected to be covered before a student completes high school. The college course descriptions provide a general overview, with specifics to be developed at the campus level; this allows campuses to change the learning objectives without the entire course being changed. It important to note that having common course descriptions across institutions is not common in higher education; for the NCCCS, this has allowed their courses to more easily transfer to four-year institutions.

This differing level of detail posed challenges in evaluating the alignment between the two sets of courses. The NCCCS course descriptions generally do not include specific objectives in contrast to the very detailed and extensive objectives found in the high school standards. As a result, the research team focused its alignment conclusions on the extent to which significant concepts or content were represented in the two sets of state-level guidelines. Below is a summary of the conclusions for each subject area. Detailed matrices for each of the subjects can be found in Appendix D.

English

To graduate from high school, students must take English III and English IV. Instead of English III, students may take three semesters of college English including Writing and Inquiry (ENG 111) and Writing/Research in the Disciplines (ENG 112) along with one of the following literature courses: American Literature I (ENG 231) or American Literature II (ENG 232). To replace English IV, students may take three semesters of college English including Writing and Inquiry (ENG 111) and Writing/Research in the Disciplines (ENG 112) along with one of the following literature courses: British Literature I (ENG 241) or British Literature II (ENG 242). If a student takes ENG 111 and ENG 112 and ENG 231 or 232 and ENG 241 or 242 (a total of four semesters of college English courses), the student can receive credit for both English III and IV at the high school level.

The NC English Language Arts (ELA) Standards are the same for both 11th and 12th grade, but they are applied to increasingly complex texts as the student goes through the grades. As a result, the research team aligned all eight courses (English III and IV and the six college courses) holistically, at the same time.

Both sets of guidelines expect students to do the following: analyze literary texts in detail, analyze different types of literary texts within different time periods, conduct research and read informational texts, analyze different sources of information, use effective writing strategies, use English grammatical conventions, and write with effective use of language.

Key concepts included in the high school ELA Standards that are not in the college course descriptions include: detailed expectations around analyzing informational text, standards related to speaking and listening, vocabulary development, and analysis of foundational American and British texts.

Key concepts in the college course descriptions that are not present in the ELA Standards include: addressing the cultural context of the time period of the literature and a focus on literature from specific countries (America and Britain) and time periods.

Science

Biology

Students are required to take one year of biology for high school graduation. In lieu of high school biology, they may take General Biology I and II (BIO 111 and BIO 112). Both state-level guidelines expect students to learn concepts related to: cellular biology, molecular biology, biological chemistry, genetics, evolution, ecology, plant and animal systems, and energy transformation within cells. The college course descriptions have no explicit mention of classification, which is a Biology Essential Standard.

Physical Sciences

For high school graduation, students are required to take one year of a physical science, which can be either physical science, chemistry, or physics. The community college has no equivalent for the high school physical science course. To replace chemistry, students can take General Chemistry I and II (CHEM 151 and CHEM 152). To replace physics, they can take College Physics I and II (PHY 151 and PHY 152).

Chemistry. Both sets of guidelines for chemistry require students to understand: the structure of atoms and ions; chemical bonding; molecular structure; the periodic table; gas laws; the relationship between pressure, temperature, volume and phase; chemical reactions; and equilibrium and solutions. The college course descriptions also include the following content not explicitly referenced in the high school standards: measurement, redox equations, electrochemistry, and complex ions.

Physics. Both sets of guidelines for physics require students to understand: motion, forces and their interaction with matter, energy and momentum, power, light, electricity and circuits, electrostatic systems, and magnetism. The college course descriptions also include heat and fluid mechanics, which are not explicitly represented in the high school physics standards but are present in the physical science standards.

Social Sciences

Students are required to take one year of World History and one year of American History to graduate from high school. To replace World History, they can take World Civilizations I and II (HIS 111 and HIS 112); to replace American History, they can take American History I and II (HIS 131 and HIS 132).

Both sets of guidelines expect students to analyze significant historical developments, but they describe different approaches. The high school Essential Standards focus on having students analyze significant themes throughout history; the college course descriptions include significant events or cultures that should be covered. It is important to note that both the U.S. History and World History standards are accompanied by unpacking documents[10] that have been approved by the North Carolina State Board of Education and that help teachers apply the themes to significant historical events.

American History. Both sets of guidelines expect students to be able to analyze historical developments. The American History Essential Standards (high school) have much more detailed expectations related to historical thinking skills and expect students to be able to take informed action. Both guidelines expect students to consider issues related to migration and immigration, social conflict, political developments, economic developments, and interactions with other nations.

The American History Essential Standards expect students to consider the following themes, which are not explicitly mentioned in the NCCCS course descriptions: American identity; scientific, intellectual and religious developments; relationship between government and people relative to freedom, equality, and power; American political system in terms of conflict, compromise, and consequence; American economic system in terms of affluence, poverty, and mobility; and relationships between America and other nations in terms of national interests and global interdependence. In addition, the Essential Standards expect students to be able to examine the impacts of historical events on different populations.

The State Board-approved American History unpacking documents provide guidance to teachers about how to connect the significant themes mentioned in the standards above to specific events that are explicitly mentioned in the NCCCS course descriptions: colonial and

[10] All high school standards have unpacking documents that serve as resources for teachers; the unpacking documents that accompany the American and World History standards are the only ones that have been formally approved by the State Board of Education.

revolutionary periods, the development of the Republic, and the Civil War, the Great Depression, the major American wars, and the Cold War.

World History. Both guidelines expect students to be able to analyze world history topics. The high school World History Essential Standards have more detailed expectations related to skills and expect students to be able to take informed action. Both guidelines expect students to analyze significant political, socioeconomic, and cultural developments.
The World History Essential standards expect students to consider the following themes that are not explicitly mentioned in the NCCCS course descriptions: technological and scientific ideas; concept of identity; relationship between societies and government in terms of freedom, equality and power; international diplomacy and policies of nations; economic relationships between groups and nations; movement of peoples; and human-environment interactions. They also expect students to be able to analyze from a variety of perspectives.

The State Board-approved World History unpacking documents provide guidance to teachers about how to connect the significant themes mentioned in the standards above to specific civilizations and time periods that are included in the NCCCS course descriptions: Christian, Islamic, and Byzantine cultures; cultures of Africa, Europe, India, China, Japan, and the Americas. The college course descriptions also include civilizations from prior to 1200 C.E. that are not covered by the high school standards: Eurasian, African, American, and Greco-Roman civilizations.

Mathematics

Students need to take four math courses to graduate from high school. The content of the first three math courses are established, and there are no college course substitutes. There are a range of math courses that can count for the fourth math;[11] as such, there is no set mathematics content that students need to learn. At the high school level, options for the fourth math include: Discrete Mathematics for Computer Science, Precalculus, NC Math 4, AP Calculus AP or BC, AP Statistics, IB Analysis & Approaches SL or HLS, IB Applications & Interpretations SL or HL, CIE Mathematics AS or A, CIE Mathematics & Mechanics AS or A, or CIE Mathematics & Probability/Statistics AS or A.[12]

At the community college level, options that could substitute for the fourth high school math course include: Mathematical Concepts I (MAT 141), Mathematical Concepts II (MAT 142), Quantitative Literacy (MAT 143), Statistical Methods (MAT 152), Discrete Math (MAT 167), Precalculus Algebra (MAT 171), Precalculus Trigonometry (MAT 172), Brief Calculus (MAT 263), Calculus I (MAT 271), Calculus II (MAT 272), Statistics II (MAT 252), Calculus III (MAT 273), Linear Algebra (MAT 280), or Differential Equations (MAT 285).

[11] https://files.nc.gov/dpi/documents/course_information/math-options-chart.pdf
[12] AP is Advanced Placement; IB is International Baccalaureate; and CIE is Cambridge Institute of Education. All three are programs that provide students with higher level coursework that can lead to college credit.

Because the fourth math course could be met by a large range of options, and there was no specific content beyond Math III that students were expected to learn to graduate from high school, the research team did not conduct alignment for math.

Appendix

- Appendix A: Legislative Charge
- Appendix B: Methods
- Appendix C: Participation Rates by Community College Service Area
- Appendix D: Course Alignment Matrices

Appendix A: Legislative Charge

"DUAL ENROLLMENT/OPPORTUNITY STUDY SECTION 7.85. The State Board of Education shall partner with a third-party entity to conduct a study examining the factors impacting all students' ability to complete high school courses leading to college credit, an associate degree, or a career-ready credential, including an examination of opportunity, resources, fees, and personnel.

The study shall also include an examination of all dual enrollment courses offered as part of the Career and College Promise Program that satisfy basic high school graduation requirements to ensure that the content and skills taught in those courses is aligned to the content and skills outlined in the Standard Course of Study for the requisite courses that meet graduation requirements. The study shall identify if dual enrollment courses are or are not aligned with the Standard Course of Study and, if not aligned, what content or skills are not aligned.

The State Board of Education shall report on findings of this study to the Joint Legislative Education Oversight Committee, the Fiscal 2 Research Division, and the Office of State Budget and Management by March 15, 2022."

Note: Because of the timing of the passage of the budget, the report due date was changed to July 15, 2022.

Appendix B: Methods

The Dual Enrollment Opportunity study was led by staff at the SERVE Center at UNCG with support on analyses of the administrative data by RAND Corporation. In addition to collecting new data, the study was able to build on data already collected by the Evaluation of Career and College Promise (CCP), a federally funded study of the impact, implementation, and cost of CCP. These already-collected data included a longitudinal dataset that combined data from the NC Community College System (NCCCS) and the North Carolina Department of Public Instruction (NCDPI) and interviews and site visits. Below are the specific methods used to address the questions in the current study.

Participation and Success Rates

To analyze student participation in CCP pathways, extent of CCP coursetaking, and success rates in dual enrollment courses, the research team leveraged the longitudinal dataset constructed for the Evaluation of Career and College Promise. The dataset included high school data from the inception of CCP through the 2019-20 school year and linked these data to students' records at the NCCCS (both high school dual enrollment and post-high school) and the UNC System. The dataset used students' Unique Statewide Identifier (UID) to link across sources.

For the analyses in this report, the research team took a cross-sectional slice of the data to gauge student participation and success in CCP in the 2019-20 school year. This is both the most recent school year for which there are high school data as well as a year for which pathway participation and course *enrollments* would **not** have been affected by the COVID-19 pandemic (since students would have chosen their courses prior to the onset of the pandemic, in early 2020). Of note, however, course success rates may have been influenced by the pandemic and any changes in grading methods implemented in spring 2020 as a result of the pandemic. Analyses focused on 12th graders in 2019-20, since 12th grade students are the most likely to participate in dual enrollment programs and focusing on them allows for comparison of participation rates by sub-group for the grade level with the highest overall rate of participation. The research team considered overall participation rates, participation rates by pathway, participation rates by student demographic characteristics (e.g., sex, race/ethnicity, economic disadvantage), participation rates by school-level factors (e.g., urbanicity and share of underrepresented minority students), and participation rates by community college.

For the College Transfer and CTE pathways, the measure of student participation in the pathways came from a flag variable provided in the NCCCS data. These data included a variable indicating whether students participated in these pathways. A small share of students (~1%) participated in both the College Transfer and CTE pathways and were included in the participation rates for both pathways. For the CIHS pathway, the measure of student participation was derived from NCDPI enrollment data paired with a list of CIHSs; enrollment in a CIHS in 12th grade in 2019-20 is the marker of CIHS pathway participation. The overall

measure of CCP participation combined these measures and indicates whether a student was enrolled at a: (1) CIHS or (2) school that was not a CIHS and participated in either the College Transfer or CTE pathway (or both).

The tabulations of the average number of dual enrollment courses taken and course success rates for these courses similarly reflect data for 12th grade students in 2019-20. Coursetaking and course success information for NC Community College courses is taken from the community college data (for both College Transfer and CTE Pathways students as well as students enrolled at CIHS hosted at the community colleges). The research team supplemented this with NC Department of Public Instruction transcript data on dual enrollment courses taken at 4-year institutions, contributing principally to course counts for CIHS pathway students enrolled at CIHS hosted at schools outside the NC Community College system. A grade of a "C" or higher was required to be considered successful completion, consistent with the requirement under the Comprehensive Articulation Agreement that students earn a "C" or higher to be eligible to transfer credits.

Because the research team relied on NCCCS data for several measures of interest, students who did not have a UID (to link high school to NCCCS data) were not included in the analyses. At the time this report was prepared, UIDs were not yet obtained for students who enrolled at NC public schools for the first time in 2019-20, accounting for 1-2% of enrolled 12th graders in 2019-20.

Site visits and Interviews

As part of the Evaluation of Career and College Promise, members of the research team conducted two rounds of site visits and interviews. The first round, in late 2019 and 2020, included interviews with staff and students with the goal of exploring reasons that students chose to participate or not in CCP. The second, and more extensive, round of interviews, done during the 2021-22 school year, were conducted to explore issues associated with the implementation of CCP. Table B-1 shows the number and types of individuals interviewed.

Table B-1: Number of Interviews by Role Type

Role Type	Number Interviewed
Students	134 (in focus groups) in 9 schools in 7 districts
School staff	36 in 12 schools in 8 districts
District staff	11 in 7 districts
College staff	23 in 6 colleges

All interviews were transcribed and de-identified for analytic purposes. For this study, the research team conducted a special analysis of the transcripts with the goal of understanding factors that were associated with students' access to and success in dual enrollment.

Survey

For the Dual Enrollment Opportunity study, the research team developed and administered a survey that focused on factors associated with students' completion of and success in dual enrollment courses. Slightly different versions of the survey were created for district, school, and college staff. Wording was identical on the vast majority of questions, except in questions where staff were asked to describe the support provided by specific institutions.

Staff from NCDPI distributed the survey to CCP coordinators who were asked to respond for their district. Staff from NCDPI also distributed the survey to Chief Academic Officers who were asked to further distribute the survey to CCP contacts at the high school level. NCDPI also distributed the survey to the CIHS principals' listserv. NCCCS staff distributed the survey to the CCP coordinators at the community college.

It is important to note that some staff members forwarded the survey to others in their district or schools, so there were cases where individuals might have responded to a survey meant for a different role type. In these cases, the research team included those responses in the group with which they seemed most appropriate. For example, if a school counselor responded to the district survey, their responses was counted as being part of a school unless they were the only response from a district, in which case, they were treated as the district representative. Table B-2 presents the number of responses by role type.

Table B-2: Survey Responses

Role Type	Number of Valid Responses
District	105 responses representing 72 districts
College	58 responses representing 45 colleges
Comprehensive High School	77 responses representing an estimated 62 schools [a]
CIHS	55 responses representing an estimated 51 schools [a]

[a] If school-level respondents completed the district version of the survey, they would not have been asked to identify the school. As a result, the number of unique schools are considered as estimates.

Results from the survey were reviewed prior to analysis to identify any invalid responses or missing data. Cases in which respondents accessed but did not complete the survey were removed from the analysis. As is typically the case with surveys, some respondents started the survey but did not complete all questions. These partial responses were included in the analysis to maximize the information available, but it should be noted that individual question response rates on questions appearing later in the survey tended to be lower than response rates on questions near the beginning of the survey.

In terms of analysis, the report includes descriptive reporting of results by respondents' role (district, school, or college staff). Also, the school staff results were broken out by comprehensive high schools and CIHS given important differences between the two types of

schools in terms of dual enrollment implementation. Most questions in the survey were closed response (e.g., strongly disagree to strongly agree). In the report, responses to these questions were reported in terms of number of respondents and percentage of responses for each response item. In some cases, response options were collapsed and reported as fewer categories for ease of interpretation. For example, the research team combined the percentage of "agree" and "strongly agree" responses to a question. Most closed-response questions in the survey were followed up with an open-ended item whereby respondents could provide additional comments. These comments were reviewed, and selected quotes were taken from the survey and included in the report.

Curriculum Alignment

To assess the alignment between high school and college courses, the research team used state-level guidance provided by NCDPI and NCCCS. These are the only common expectations that would apply to high schools and colleges across the state. More detailed guidance would be specific at the district level or the community college. The research team met with agency representatives to identify the correct guidelines. For NCCCS, the guidelines were the course descriptions found in the Common Course Library. For NCDPI, the state-level guidelines were the Essential Learning Standards found on the agency website. It is important to note that each set of standards comes with unpacking documents, which are intended to serve as a resource for teachers to help them implement the standards. Because these unpacking documents are optional for teachers, their content is not included in the alignment matrices with two exceptions. The unpacking documents' content is referenced in the alignment for the American and World History standards because those unpacking documents have been formally approved by the State Board of Education.

At this point, the research team also looked at the math courses and identified a total of 30 different math courses (16 at the high school level—only one of which had standards associated with it—and 14 at the college level) that students could take as their final math graduation requirement. This is different from the other courses where there is specific content that students are supposed to know before they graduate. Given that there was no specific content required for the fourth math course, the research team decided it was not appropriate to do an alignment for math.

For each high school subject, there are at least two college courses intended to serve as the equivalent. For English, the same standards are in place for high school English III and IV; there are six college courses that, across them, represent the equivalent of those courses. The research team looked at the alignment holistically across all of the relevant courses within the subject area. For example, both high school English courses were compared to all of the English college courses simultaneously instead of comparing them one-to-one with each other.

As the next step, the research team created matrices for each subject (see Appendix D) that started with the high school Essential Standards for the relevant subjects. Each matrix included

the larger goals and the specific objectives. The research team then placed the college course descriptions at the top of the matrix. It soon became clear that the college course descriptions were written at a much broader and higher level than the high school standards. As a result, the research team decided to focus on alignment at the broader core concept level, instead of detailing all of the specific objectives that were not explicitly represented in the community college course descriptions.

For each key goal in the standard, the research team identified parts of the college course descriptions that reflected the same content or concepts represented in the goal. The research team also identified high school goals that were not represented in the college course descriptions or aspects of the college course descriptions that were not represented by the goals. All of the language in the matrices is taken verbatim from the standards or course descriptions with the exception of the alignment column, which reflects the syntheses of the research team.

Members of the research team included individuals with content expertise in history, English, biology, chemistry, and physics, along with experience in curriculum alignment.

Appendix C: Participation Rates by Community College Service Area

The table below presents the percentage of 12th graders within a community college service area who participated in CCP overall, with participation also broken out by pathway. It is important to note that this is *not* the percentage of college students who are dually enrolled; it is the percentage of 12th graders in the service area who participated in any of the CCP pathways. The research team chose this metric instead of absolute numbers or percentage of college enrollment so that small and large colleges would be on the same scale.

Table C-1: Percentage of 12th Graders Participating in CCP within a Community College Service Area

College	% CCP Participation	% College Transfer Pathway Participation	% CTE Pathway Participation	% CIHS Pathway Participation
Alamance CC	31%	16%	12%	3%
Asheville-Buncombe Technical CC	45%	22%	11%	13%
Beaufort County CC	46%	17%	9%	24%
Bladen CC	41%	24%	18%	0%
Blue Ridge CC	30%	18%	10%	3%
Brunswick CC	29%	16%	6%	7%
Caldwell CC and TI	49%	25%	7%	17%
Cape Fear CC	38%	29%	4%	6%
Carteret CC	45%	38%	9%	0%
Catawba Valley CC	32%	19%	7%	6%
Central Carolina CC	51%	29%	19%	4%
Central Piedmont CC	16%	9%	2%	4%
Cleveland CC	43%	24%	17%	5%
Coastal Carolina CC	18%	18%	0%	0%
College of The Albemarle	35%	26%	3%	6%
Craven CC	41%	28%	6%	8%
Davidson County CC	29%	17%	7%	6%
Durham TCC	16%	5%	3%	8%
Edgecombe CC	45%	19%	21%	8%
Fayetteville TCC	24%	13%	7%	5%
Forsyth TCC	11%	6%	1%	3%
Gaston College	31%	24%	9%	1%
Guilford TCC	18%	9%	1%	8%

College	% CCP Participation	% College Transfer Pathway Participation	% CTE Pathway Participation	% CIHS Pathway Participation
Halifax CC	25%	9%	3%	13%
Haywood CC	44%	24%	13%	8%
Isothermal CC	47%	27%	15%	8%
James Sprunt CC	44%	32%	8%	7%
Johnston CC	23%	14%	6%	3%
Lenoir CC	48%	28%	12%	10%
Martin CC	52%	24%	11%	18%
Mayland CC	73%	38%	34%	8%
McDowell TCC	53%	23%	14%	18%
Mitchell CC	28%	16%	8%	5%
Montgomery CC	66%	16%	33%	21%
Nash CC	37%	21%	11%	6%
Pamlico CC	60%	43%	19%	0%
Piedmont CC	50%	25%	18%	9%
Pitt CC	42%	29%	14%	4%
Randolph CC	40%	25%	11%	5%
Richmond CC	45%	29%	9%	9%
Roanoke Chowan CC	36%	8%	17%	13%
Robeson CC	20%	14%	3%	3%
Rockingham CC	30%	16%	5%	9%
Rowan-Cabarrus CC	31%	23%	5%	4%
Sampson CC	45%	27%	14%	8%
Sandhills CC	44%	32%	11%	6%
South Piedmont CC	29%	21%	5%	4%
Southeastern CC	49%	28%	11%	12%
Southwestern CC	59%	31%	18%	12%
Stanly CC	58%	36%	19%	7%
Surry CC	58%	32%	21%	9%
Tri-County CC	61%	43%	20%	8%
Vance-Granville CC	19%	12%	4%	4%
Wake TCC	10%	6%	2%	2%
Wayne CC	31%	20%	5%	9%
Western Piedmont CC	42%	30%	5%	8%
Wilkes CC	55%	32%	21%	5%
Wilson CC	39%	22%	6%	12%

The next table shows CCP participation rates of 12th graders by community college service area broken out by student demographic characteristics. Specifically, it presents participation rates for economically disadvantaged and underrepresented minority students alongside rates for students who are not economically disadvantaged or not underrepresented minority.

Table C-2: Percentage of 12th Graders Participating in CCP in Community College Service Area, by Selected Characteristics

College	% CCP Participation, All Students	% CCP Participation, Economically Disadvantaged Students	% CCP Participation, Students Not Economically Disadvantaged	% CCP Participation, Underrepresented Minority Students	% CCP Participation, Students Not Underrepresented Minority
Alamance CC	31%	24%	35%	27%	34%
Asheville-Buncombe Technical CC	45%	32%	52%	35%	49%
Beaufort County CC	46%	34%	53%	34%	61%
Bladen CC	41%	32%	47%	33%	55%
Blue Ridge CC	30%	25%	33%	20%	34%
Brunswick CC	29%	20%	32%	25%	31%
Caldwell CC and TI	49%	35%	56%	37%	51%
Cape Fear CC	38%	23%	44%	24%	45%
Carteret CC	45%	19%	53%	29%	49%
Catawba Valley CC	32%	19%	39%	23%	36%
Central Carolina CC	51%	38%	60%	43%	59%
Central Piedmont CC	16%	13%	17%	13%	20%
Cleveland CC	43%	30%	53%	32%	49%
Coastal Carolina CC	18%	8%	23%	18%	18%
College of The Albemarle	35%	21%	43%	18%	44%
Craven CC	41%	22%	50%	26%	52%
Davidson County CC	29%	18%	34%	22%	31%
Durham TCC	16%	14%	17%	18%	14%
Edgecombe CC	45%	40%	48%	36%	66%
Fayetteville TCC	24%	18%	29%	22%	30%
Forsyth TCC	11%	7%	13%	7%	15%
Gaston College	31%	16%	38%	20%	36%
Guilford TCC	18%	14%	21%	17%	20%
Halifax CC	25%	16%	35%	24%	28%
Haywood CC	44%	33%	52%	24%	47%
Isothermal CC	47%	35%	50%	37%	50%
James Sprunt CC	44%	30%	49%	34%	66%

College	% CCP Participation, All Students	% CCP Participation, Economically Disadvantaged Students	% CCP Participation, Students Not Economically Disadvantaged	% CCP Participation, Underrepresented Minority Students	% CCP Participation, Students Not Underrepresented Minority
Johnston CC	23%	15%	26%	16%	28%
Lenoir CC	48%	32%	56%	38%	64%
Martin CC	52%	42%	57%	46%	60%
Mayland CC	73%	63%	80%	59%	75%
McDowell TCC	53%	45%	59%	49%	54%
Mitchell CC	28%	14%	32%	20%	31%
Montgomery CC	66%	58%	75%	58%	75%
Nash CC	37%	25%	49%	27%	55%
Pamlico CC	60%	48%	66%	50%	65%
Piedmont CC	50%	40%	55%	43%	55%
Pitt CC	42%	21%	53%	27%	63%
Randolph CC	40%	28%	49%	34%	43%
Richmond CC	45%	32%	54%	36%	57%
Roanoke Chowan CC	36%	24%	46%	32%	61%
Robeson CC	20%	14%	24%	20%	20%
Rockingham CC	30%	19%	37%	25%	33%
Rowan-Cabarrus CC	31%	19%	37%	24%	37%
Sampson CC	45%	33%	48%	40%	52%
Sandhills CC	44%	27%	52%	29%	60%
South Piedmont CC	29%	15%	32%	20%	33%
Southeastern CC	49%	31%	57%	36%	60%
Southwestern CC	59%	48%	66%	50%	62%
Stanly CC	58%	38%	69%	38%	65%
Surry CC	58%	47%	66%	50%	61%
Tri-County CC	61%	53%	66%	58%	61%
Vance-Granville CC	19%	10%	25%	14%	27%
Wake TCC	10%	7%	11%	9%	11%
Wayne CC	31%	19%	36%	21%	46%
Western Piedmont CC	42%	28%	52%	31%	46%
Wilkes CC	55%	39%	66%	42%	58%
Wilson CC	39%	24%	51%	29%	60%

Appendix D: Course Alignment Matrices

Note: In the alignment column within each matrix, the high school standards are referred to as NC SCOS, which is short for the North Carolina Standard Course of Study. The North Carolina Community College System is abbreviated as NCCCS.

Alignment Matrix: English

High School Classes: 11th and 12th grade English

The NC English Language Arts Standards for Grades 11-12 appear in the table below. The same standards are taught in both years but applied to increasingly complex texts as stated in Standard RL.11-12.10 and RI.11-12.

Source: NC English Language Arts Standard Course of Study 11-12 Grade-Specific Standards, https://drive.google.com/file/d/1mk3U9DKrLNQBxkkrloBA16ghHr4xIarY/view

College Subjects: Writing and Inquiry (ENG 111) and Writing/Research in the Discipline (ENG 112) with American Literature I (ENG 231) or American Literature II (ENG 232), British Literature I (ENG 241) or British Literature II (ENG 242)

Source: NCCCS Combined Course Library

Note about course descriptions: Each English course has an overarching program description; ENG 111, 231 and 232 have learning outcomes. Additional learning outcomes are identified at the campus level.

Note about high school-college course equivalency: To get credit for one year of high school English, a student has to take two semesters of college writing (ENG 111 and ENG 112) and one semester of college literature (ENG 231 or ENG 232 to substitute for English III or ENG 241 or ENG 242 for English IV). This is because both ENG 111 and 112 are prerequisites for any of the literature courses. If a student takes an additional semester of a different college literature course, they get credit for both years of high school English.

College course descriptions

ENG 111: This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English.

Competencies/Student Learning Outcomes:

1. Demonstrate writing as a recursive process.
2. Demonstrate writing and inquiry in context using different rhetorical strategies to reflect, analyze, explain, and persuade in a variety of genres and formats.
3. Students will reflect upon and explain their writing strategies.
4. Demonstrate the critical use and examination of printed, digital, and visual materials.
5. Locate, evaluate, and incorporate relevant sources with proper documentation.
6. Compose texts incorporating rhetorically effective and conventional use of language.
7. Collaborate actively in a writing community.

ENG 112: This course, the second in a series of two, introduces research techniques, documentation styles, and writing strategies. Emphasis is placed on analyzing information and ideas and incorporating research findings into documented writing and research projects. Upon completion, students should be able to evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.

ENG 231: This course covers selected works in American literature from its beginnings to 1865. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to analyze and interpret literary works in their historical and cultural contexts.

Competencies/Student Learning Outcomes:

1. Describe, analyze, interpret and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms.
2. Critically analyze and interpret American literature from its beginnings to 1865 within historical and cultural contexts.
3. Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.

ENG 232: This course covers selected works in American literature from 1865 to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to analyze and interpret literary works in their historical and cultural contexts.

Competencies/Student Learning Outcomes:

1. Describe, analyze, interpret, and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms.
2. Critically analyze and interpret American literature from 1865 to the present within historical and cultural contexts.
3. Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.

ENG 241: This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

ENG 242: This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
Reading Standards for Literature				
Key Ideas and Evidence	RL.11-12.1 RL.11-12.2 RL.11-12.3	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain. Determine two or more themes of a text and analyze their development over the course of the text, including how they interact and build on one another to produce a complex account; provide an objective summary of the text. Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama.	ENG 231 and 232 1. Describe, analyze, interpret and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms. ENG 241 and 242: Students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.	Both expect students to analyze literary texts in detail. NCCCS has more general statements that could cover the NC SCOS more specific objectives.
Craft and Structure	RL.11-12.4 RL.11-12.5 RL.11-12.6	Determine the meaning of words and phrases as they are used in the text; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly engaging. Analyze how an author's choices concerning how to construct specific parts of a text contribute to its overall structure and meaning as well as its effect on the reader. Analyze a case in which grasping perspective requires distinguishing what is directly stated in a text from what is really meant.	ENG 231 and 232 1. Describe, analyze, interpret and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms. ENG 241 and 242: Students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.	Both expect students to analyze literary texts in detail. NCCCS has more general statements that could cover the NC SCOS more specific objectives.
Integration of Ideas and Analysis	RL.11-12.7 RL.11-12.9	Analyze multiple interpretations of a story, drama, or poem, evaluating how each version interprets the source text. Analyze how two or more texts from the same period treat similar themes or topics and compare the approaches the authors take.	ENG 231 and 232 1. Describe, analyze, interpret and evaluate features of literary texts in several genres, applying appropriate literary and cultural terms. ENG 241 and 242: Students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts.	Both expect analyses of different texts within time periods. NCCCS addresses the cultural context and time period, which NC SCOS does not do.

NC Standard Course of Study 11th and 12th Grade ELA Standards		Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
Range of Reading and Level of Complexity	RL.11-12.10 By the end of grade 11, read and understand literature within the 11-12 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text. By the end of grade 12, read and understand literature at the high end of the 11-12 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text.	ENG 231 2. Critically analyze and interpret American literature from its beginnings to 1865 within historical and cultural contexts ENG 232 2. Critically analyze and interpret American literature from 1865 to the present within historical and cultural contexts: ENG 241: This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. ENG 242: This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama.	NCCCS focuses on literature from specific countries/time periods; NC SCOS does not require texts from specific countries or time periods.

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
Reading Standards for Informational Text				
Key Ideas and Evidence	RI.11-12.1	Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	ENG 112: Evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.	NC SCOS has standards specific to the analysis of informational text. Within the context of research, NCCCS expects students to evaluate and synthesize information from texts appropriate to various disciplines.
	RI.11-12.2	Determine two or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.		
	RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.		
Craft and Structure	RI.11-12.4	Determine the meaning of words and phrases as they are used in a text; analyze how an author uses and refines the meaning of a key term or terms over the course of a text.	ENG 112: Evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.	NC SCOS has standards specific to the analysis of informational text. Within the context of research, NCCCS expects students to evaluate and synthesize information from texts appropriate to various disciplines.
	RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.		
	RI.11-12.6	Determine an author's point of view or purpose in a text in which the rhetoric is particularly effective, analyzing how style and content contribute to the power, and/or persuasiveness of the text.		
Integration of Ideas and Analysis	RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats, including visually and quantitatively, as well as in words in order to address a question or solve a problem.	ENG 111 4. Demonstrate the critical use and examination of printed, digital, and visual materials. ENG 112: Evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.	Both expect students to analyze different sources of information. NC SCOS requires informational texts to include foundational U.S. and British documents; NCCCS has no reference to types of texts to be analyzed.
	RI.11-12.8	Delineate and evaluate the reasoning in influential U.S. and/or British texts, including the premises, purposes, and arguments in works of public advocacy.		

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
	RI.11-12.9	Analyze foundational U.S. and/or British documents of historical and literary significance for their themes, purposes, and rhetorical features.		
Range of Reading and Level of Complexity	RI.11-12.10	By the end of grade 11, read and understand informational texts within the 11-12 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text. By the end of grade 12, read and understand informational texts at the high end of the 11-12 text complexity band proficiently and independently for sustained periods of time. Connect prior knowledge and experiences to text.	ENG 112: Evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.	Both documents expect students to read a variety of informational texts.
Writing Standards				
Text Types, Purposes, and Publishing	W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence. a. Organize information and ideas around a topic to plan and prepare to write. b. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences claim(s), counterclaims, reasons, and evidence. c. Develop claim(s) and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases. d. Use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between	ENG 111. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. ENG 111. 1. Demonstrate writing as a recursive process. 2. Demonstrate writing and inquiry in context using different rhetorical strategies to reflect, analyze, explain, and persuade in a variety of genres and formats. 3. Students will reflect upon and explain their writing strategies.	Both expect students to be able to use effective writing strategies. NCCCS has more general statements that could cover the NC SCOS more specific objectives.

NC Standard Course of Study 11th and 12th Grade ELA Standards		Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
	claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims. e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. f. Provide a concluding statement or section that follows from and supports the argument presented. g. Develop and strengthen writing as needed by revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.	6. Compose texts incorporating rhetorically effective and conventional use of language 7. Collaborate actively in a writing community ENG 231 and 232 3. Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.	
W.11-12.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. a. Organize information and ideas around a topic to plan and prepare to write. b. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting, graphics, and multimedia when useful to aiding comprehension. c. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic. d. Use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts. e. Use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic.		

NC Standard Course of Study 11th and 12th Grade ELA Standards	Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
f. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing. g. Provide a concluding statement or section that follows from and supports the information or explanation presented. h. Develop and strengthen writing as needed by revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience. W.11-12.3 Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences. a. Organize information and ideas around a topic to plan and prepare to write. b. Engage and orient the reader by setting out a problem, situation, or observation and its significance, establishing one or multiple point(s) of view, and introducing a narrator and/or characters; create a smooth progression of experiences or events. c. Use narrative techniques, such as dialogue, pacing, description, reflection, and multiple plot lines, to develop experiences, events, and/or characters. d. Use a variety of techniques to sequence events so that they build on one another to create a coherent whole and build toward a particular tone and outcome. e. Use precise words and phrases, telling details, and sensory language to convey a vivid picture of the experiences, events, setting, and/or characters. f. Provide a conclusion that follows from and reflects on what is experienced, observed, or resolved over the course of the narrative.		

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
		g. Develop and strengthen writing as needed by revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.		
	W.11-12.4	Use digital tools and resources to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.		
Research	W.11-12.5	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	ENG 111: 5. Locate, evaluate, and incorporate relevant sources with proper documentation. ENG 112: Emphasis is placed on analyzing information and ideas and incorporating research findings into documented writing and research projects. Upon completion, students should be able to evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines.	Both expect students to conduct research and find and synthesize resources.
	W.11-12.6	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.		
Speaking and Listening Standards				
Collaboration and Communication	SL.11-12.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11–12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively. a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts	ENG 111 4: Demonstrate the critical use and examination of printed, digital, and visual materials.	NCCCS has no specific guidance around speaking and listening.

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
		and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas. b. Work with peers to promote civil, democratic discussions and decision-making, set clear goals and deadlines, and establish individual roles as needed. c. Propel conversations by posing and responding to questions that probe reasoning and evidence; ensure a hearing for a full range of positions on a topic or issue; clarify, verify, or challenge ideas and conclusions; and promote divergent and creative perspectives. d. Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.		
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.		
	SL.11-12.3	Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.		
Presentation of Knowledge and Ideas	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.		NCCCS has no specific guidance around speaking and listening.

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
	SL.11-12.5	Make strategic use of digital media in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.		
Language Standards				
Conventions of Standard English	L.11-12.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking; demonstrate proficiency within the 9-12 grammar continuum. (See Language Standards – Grammar Continuum.[13])	ENG 111: Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. 6. Compose texts incorporating rhetorically effective and conventional use of language. ENG 232 and 233 3: Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.	Both expect command of English grammatical conventions.
	L.11-12.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing; demonstrate proficiency within the 9-12 conventions continuum. (See Language Standards – Conventions Continuum.[1])		
Knowledge	L.11-12.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening. a. Vary syntax for effect, consulting references for guidance as needed; apply an understanding of syntax to the study of complex texts when reading.	ENG 111 Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. 6. Compose texts incorporating rhetorically effective and conventional use of language. ENG 232 and 233	Both expect effective use of language.

[13] The ELA standards include a detailed continuum for grammar expectations that can be found on pages 7-11 of the standards. They are not included here in the interest of space: https://drive.google.com/file/d/1mk3U9DKrLNQBxkkrloBA16ghHr4xIarY/view

NC Standard Course of Study 11th and 12th Grade ELA Standards			Relevant Excerpts from NC Community College System Course Description/Learning Outcomes	Alignment
			3: Write critical essays about American literature that integrate primary and secondary sources using MLA documentation and standard academic written conventions.	
Vocabulary Acquisition and Use	L.11-12.4	Determine and/or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 11–12 reading and content, choosing flexibly from a range of strategies: context clues, word parts, word relationships, and reference materials.		NCCCS does not reference vocabulary development.
	L.11-12.5	Demonstrate understanding of figurative language and nuances in word meanings. a. Interpret figures of speech in context and analyze their role in the text based on grades 11-12 reading and content. b. Analyze nuances in the meaning of words with similar denotations.		
	L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in developing vocabulary knowledge when considering a word or phrase important to comprehension or expression.		

Alignment Matrix: Biology

High School Class: Biology

Essential standards and objectives appear in table below.

Source: Biology Essential Standards, https://www.dpi.nc.gov/documents/cte/curriculum/science/biology-essential-standards

College Subjects: General Biology I (BIO 111) and General Biology II (BIO 112)

Source: NCCCS Combined Course Library

Note about course descriptions: Each Biology course has an overarching course description; specific learning outcomes are identified at the campus level.

College course descriptions

BIO 111: This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, molecular and cellular biology, metabolism and energy transformation, genetics, evolution, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels

BIO 112: This course is a continuation of BIO 111. Emphasis is placed on organisms, evolution, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels.

NC Standard Course of Study Biology Essential Standards	NC Standard Course of Study Biology Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Bio. 1.1. Understand the relationship between the structures and functions of cells and their organelles	Bio.1.1.1 Summarize the structure and function of organelles in eukaryotic cells (including the nucleus, plasma membrane, cell wall, mitochondria, vacuoles, chloroplasts, and ribosomes) and ways that these organelles interact with each other to perform the function of the cell. Bio.1.1.2 Compare prokaryotic and eukaryotic cells in terms of their general structures (plasma membrane and genetic material) and degree of complexity. Bio.1.1.3 Explain how instructions in DNA lead to cell differentiation and result in cells specialized to perform specific functions in multicellular organisms.	BIO 111: cellular biology, understanding of life at the molecular and cellular levels	Both expect students to understand cellular biology. NCCCS has general topics that could incorporate the NC SCOS objectives.

NC Standard Course of Study Biology Essential Standards	NC Standard Course of Study Biology Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Bio 1.2 Analyze the cell as a living system	Bio.1.2.1 Explain how homeostasis is maintained in the cell and within an organism in various environments (including temperature and pH). Bio.1.2.2 Analyze how cells grow and reproduce in terms of interphase, mitosis and cytokinesis. Bio.1.2.3 Explain how specific cell adaptations help cells survive in particular environments (focus on unicellular organisms).	BIO 111: basic biological chemistry, cellular biology, evolution, understanding of life at the molecular and cellular levels BIO 112: comprehension of life at the organismal levels	NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 2.1 Analyze the interdependence of living organisms within their environment	Bio.2.1.1 Analyze the flow of energy and cycling of matter (water, carbon, nitrogen and oxygen) through ecosystems relating the significance of each to maintaining the health and sustainability of an ecosystem. Bio.2.1.2 Analyze the survival and reproductive success of organisms in terms of behavioral, structural, and reproductive adaptations. Bio.2.1.3 Explain various ways organisms interact with each other (including predation, competition, parasitism, mutualism) and with their environments resulting in stability within ecosystems. Bio.2.1.4 Explain why ecosystems can be relatively stable over hundreds or thousands of years, even though populations may fluctuate (emphasizing availability of food, availability of shelter, number of predators and disease).	BIO 112: ecology, plant and animal systems, evolution, biodiversity, comprehension of life at the ecological levels	Both expect students to understand ecological concepts. NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 2.2 Understand the impact of human activities on the environment (one generation affects the next)	Bio.2.2.1 Infer how human activities (including population growth, pollution, global warming, burning of fossil fuels, habitat destruction and introduction of nonnative species) may impact the environment. Bio.2.2.2 Explain how the use, protection and conservation of natural resources by humans impact the environment from one generation to the next.	BIO 112: ecology, comprehension of life at the ecological levels	Both expect students to understand ecological concepts. NCCCS has general topics that could incorporate the NC SCOS objectives.

NC Standard Course of Study Biology Essential Standards	NC Standard Course of Study Biology Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Bio 3.1 Explain how traits are determined by the structure and function of DNA	Bio.3.1.1 Explain the double-stranded, complementary nature of DNA as related to its function in the cell. Bio.3.1.2 Explain how DNA and RNA code for proteins and determine traits. Bio.3.1.3 Explain how mutations in DNA that result from interactions with the environment (i.e. radiation and chemicals) or new combinations in existing genes lead to changes in function and phenotype.	BIO 111: molecular biology, genetics, evolution, understanding of life at the molecular levels	Both expect students to understand molecular biology. NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 3.2 Understand how the environment and/or the interaction of alleles, influences the expression of genetic traits	Bio.3.2.1 Explain the role of meiosis in sexual reproduction and genetic variation. Bio.3.2.2 Predict offspring ratios based on a variety of inheritance patterns (including dominance, co-dominance, incomplete dominance, multiple alleles, and sex-linked traits). Bio.3.2.3 Explain how the environment can influence the expression of genetic traits.	BIO 111: genetics, molecular and cellular biology, evolution BIO 112: evolution, biodiversity	Both expect students to understand genetics. NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 3.3 Understand the application of DNA technology	Bio.3.3.1 Interpret how DNA is used for comparison and identification of organisms. Bio.3.3.2 Summarize how transgenic organisms are engineered to benefit society. Bio.3.3.3 Evaluate some of the ethical issues surrounding the use of DNA technology (including cloning, genetically modified organisms, stem cell research, and Human Genome Project).	BIO 111: molecular biology BIO 112: organisms	NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 3.4 Explain the theory of evolution by natural selection as a mechanism for how species change over time.	Bio.3.4.1 Explain how fossil, biochemical, and anatomical evidence support the theory of evolution. Bio.3.4.2 Explain how natural selection influences the changes in species over time. Bio.3.4.3 Explain how various disease agents (bacteria, viruses, chemicals) can influence natural selection.	BIO 111 and 112: evolution	Both expect students to understand evolution. NCCCS has general topics that could incorporate the NC SCOS objectives.

NC Standard Course of Study Biology Essential Standards	NC Standard Course of Study Biology Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Bio 3.5 Analyze how classification systems are developed upon speciation.	Bio.3.5.1 Explain the historical development and changing nature of classification systems. Bio.3.5.2 Analyze the classification of organisms according to their evolutionary relationships (including dichotomous keys and phylogenetic trees).	BIO 111 and 112: evolution	NCCCS has no explicit mention of classification.
Bio 4.1 Understand how biological molecules are essential to living organisms	Bio.4.1.1 Compare the structures and functions of the major biological molecules (carbohydrates, proteins, lipids, and nucleic acids) as related to the survival of living organisms. Bio.4.1.2 Summarize the relationship among DNA, proteins and amino acids in carrying out the work of cells and how this is similar in all organisms. Bio.4.1.3 Explain how enzymes act as catalysts for biological reactions.	BIO 111: molecular biology, metabolism and energy transformation	Both expect students to understand molecular biology. NCCCS has general topics that could incorporate the NC SCOS objectives.
Bio 4.2 Analyze the relationships between biochemical processes and energy use in the cell.	Bio.4.2.1 Analyze photosynthesis and cellular respiration in terms of how energy is stored, released, and transferred within and between these systems. Bio.4.2.2 Explain ways that organisms use released energy	BIO 111: metabolism and energy transformation BIO 112: organisms	Both expect students to understand energy within cells. NCCCS has general topics that could incorporate the NC SCOS objectives.

Alignment Matrix: Chemistry

High School Class: Chemistry

Essential standards and objectives appear in table below.

Source: NC Science K-12 Essential Standards, https://docs.google.com/spreadsheets/d/1EU-IY-rSvUPtB8tlNzVfuQkv0DT4N2Pa/edit#gid=201245743

College Courses: General Chemistry I (CHM 151) and General Chemistry II (CHM 152)

Source: NCCCS Combined Course Library

Note about course descriptions: Each Chemistry course has an overarching program description; specific learning outcomes are identified at the campus level.

College course descriptions

CHM 151: This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152.

CHM 152: This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields.

NC Standard Course of Study Chemistry Essential Standards	NC Standard Course of Study Chemistry Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Chm 1.1: Analyze the structure of atoms and ions.	Chm.1.1.1 Analyze the structure of atoms, isotopes, and ions. Chm.1.1.2 Analyze an atom in terms of the location of electrons. Chm.1.1.3 Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model. Chm.1.1.4 Explain the process of radioactive decay using nuclear equations and half-life.	CHM 151: atomic structure CHM 152: introduction to nuclear chemistry	Both expect students to understand the structure of atoms and ions. NCCCS has general topics that could incorporate the NC SCOS objectives.
Chm 1.2: Understand the bonding that occurs in simple compounds in terms of bond type, strength, and properties.	Chm.1.2.1 Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds. Chm.1.2.2 Infer the type of bond and chemical formula formed between atoms.	CHM 151: chemical bonding, molecular structure	Both expect students to understand bonding in simple compounds. NCCCS has general

NC Standard Course of Study Chemistry Essential Standards	NC Standard Course of Study Chemistry Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	Chm.1.2.3 Compare inter- and intra- particle forces. Chm.1.2.4 Interpret the name and formula of compounds using IUPAC convention. Chm.1.2.5 Compare the properties of ionic, covalent, metallic, and network compounds		topics that could incorporate the NC SCOS objectives.
Chm 1.3: Understand the physical and chemical properties of atoms based on their position in the Periodic Table.	Chm.1.3.1 Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition). Chm.1.3.2 Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table. Chm.1.3.3 Infer the atomic size, reactivity, electronegativity, and ionization energy of an element from its position in the Periodic Table.	CHM 151: atomic structure, periodicity	Both expect students to understand properties of atoms based on their position in the Periodic Table. NCCCS has general topics that could incorporate the NC SCOS objectives.
Chm 2.1: Understand the relationship among pressure, temperature, volume, and phase.	Chm.2.1.1 Explain the energetic nature of phase changes. Chm.2.1.2 Explain heating and cooling curves (heat of fusion, heat of vaporization, specific heat, melting/freezing point, and boiling/condensing point). Chm.2.1.3 Interpret the data presented in phase diagrams. Chm.2.1.4 Infer simple calorimetric calculations based on the concepts of heat lost equals heat gained and specific heat. Chm.2.1.5 Explain the relationships among pressure, temperature, volume, and quantity of gas, both qualitatively and quantitatively.	CHM 151: gas laws, thermochemistry CHM 152: thermodynamics	Both expect students to understand the relationship between pressure, temperature, volume, and phase. NCCCS has general topics that could incorporate the NC SCOS objectives.
Chm 2.2: Analyze chemical reactions in terms of quantities, product formation, and energy.	Chm.2.2.1 Explain the energy content of a chemical reaction. Chm.2.2.2 Analyze the evidence of chemical change. Chm.2.2.3 Analyze the Law of Conservation of Matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).	CHM 151: chemical reactions, stoichiometry, thermochemistry CHM 152: kinetics, thermodynamics	Both expect students to understand chemical reactions. NCCCS has general topics that could incorporate the NC SCOS objectives.

NC Standard Course of Study Chemistry Essential Standards	NC Standard Course of Study Chemistry Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	Chm.2.2.4 Analyze the stoichiometric relationships inherent in a chemical reaction. Chm.2.2.5 Analyze quantitatively the composition of a substance (empirical formula, molecular formula, percent composition, and hydrates).		
Chm 3.1: Understand the factors affecting rate of reactions and chemical equilibrium.	Chm.3.1.1 Explain the factors that affect the rate of a reaction (temperature, concentration, particle size and presence of a catalyst). Chm.3.1.2 Explain the conditions of a system at equilibrium. Chm.3.1.3 Infer the shift in equilibrium when a stress is applied to a chemical system (LeChatelier's).	CHM 151: chemical reactions CHM 152: equilibrium	Both expect students to understand chemical reactions and equilibrium. NCCCS has general topics that could incorporate the NC SCOS objectives.
Chm 3.2: Understand solutions and the solution process.	Chm.3.2.1 Classify substances using the hydronium and hydroxide ion concentrations. Chm.3.2.2 Summarize the properties of acids and bases. Chm.3.2.3 Infer the quantitative nature of a solution (molarity, dilution, and titration with a 1:1 molar ratio). Chm.3.2.4 Summarize the properties of solutions. Chm.3.2.6 Explain the solution process.	CHM 151: stoichiometry, solutions CHM 152: introduction to organic chemistry, acid-base theory	Both expect students to understand solutions. NCCCS has general topics that could incorporate the NC SCOS objectives.

Concepts from NCCCS course descriptions not covered by NC SCOS: measurement (CHM 151), redox equations (CHM 152), electrochemistry (CHM 152), and complex ions (CHM 152). Ionic equations are not explicitly mentioned in the standards, but they are included in the supplementary unpacking document, which is an optional resource for teachers to use.

Alignment Matrix: Physics

High School Class: Physics

Essential standards and objectives appear in table below.

Source: NC Science K-12 Essential Standards, https://docs.google.com/spreadsheets/d/1EU-IY-rSvUPtB8tlNzVfuQkv0DT4N2Pa/edit#gid=201245743

College Courses: College Physics I (PHY 151) and College Physics II (PHY 152)

Source: NCCCS Combined Course Library

Note about course descriptions: Each Physics course has an overarching course description; specific learning outcomes are identified at the campus level.

College course descriptions

PHY 151: This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

PHY 152: This course uses algebra- and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem-solving ability for the topics covered.

NC Standard Course of Study Physics Essential Standards	NC Standard Course of Study Physics Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Phy 1.1: Analyze the motion of objects.	Phy.1.1.1 Analyze motion graphically and numerically using vectors, graphs and calculations. Phy.1.1.2 Analyze motion in one dimension using time, distance, displacement, velocity and acceleration. Phy.1.1.3 Analyze motion in two dimensions using angle of trajectory, time, distance, displacement, velocity and acceleration.	PHY 151: units and measurement, vectors, linear kinematics and dynamics	Both expect students to understand the motion of objects. NCCCS has general topics that could incorporate the NC SCOS objectives.
Phy 1.2: Analyze systems of forces and their interaction with matter.	Phy.1.2.1 Analyze forces and systems of forces graphically and numerically using vectors, graphs and calculations.	PHY 151: vectors, momentum	Both expect students to analyze forces and their interaction with matter. NCCCS has general

NC Standard Course of Study Physics Essential Standards	NC Standard Course of Study Physics Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	Phy.1.2.2 Analyze systems of forces in one dimension and two dimensions using free body diagrams. Phy.1.2.3 Explain forces using Newton's Laws of Motion as well as the Universal Law of Gravitation. Phy.1.2.4 Explain the effects of forces (including weight, normal, tension, and friction) on objects. Phy.1.2.5 Analyze basic forces related to rotation in a circular path (Centripetal Force).		topics that could incorporate the NC SCOS objectives.
Phy 1.3: Analyze the motion of objects based on the principles of conservation of momentum, conservation of energy, and impulse.	Phy.1.3.1 Analyze the motion of objects involved in completely elastic and completely inelastic collisions by using the principles of conservation of momentum and conservation of energy. Phy.1.3.2 Analyze the motion of objects based on the relationship between momentum and impulse.	PHY 151: energy, momentum	Both expect students to understand energy and momentum. NCCCS has general topics that could incorporate the NC SCOS objectives.
Phy 2.1: Understand the concepts of work, energy, and power, as well as the relationship among them.	Phy.2.1.1 Interpret data on work and energy presented graphically and numerically. Phy.2.1.2 Compare the concepts of potential and kinetic energy and conservation of total mechanical energy in the description of the motion of objects. Phy.2.1.3 Explain the relationship among work, power and energy.	PHY 151: energy, power	Both expect students to understand energy and power. NCCCS has general topics that could incorporate the NC SCOS objectives.
Phy 2.2: Analyze the behavior of waves.	Phy.2.2.1 Analyze how energy is transmitted through waves, using the fundamental characteristics of waves: wavelength, period, frequency, amplitude, and wave velocity. Phy.2.2.2 Analyze wave behaviors in terms of transmission, reflection, refraction and interference. Phy.2.2.3 Compare mechanical and electromagnetic waves in terms of wave characteristics and behavior (specifically sound and light).	PHY 152: light, alternating-current circuits	Both expect students to understand light in the context of the behavior of waves. NCCCS has general topics that could incorporate the NC SCOS objectives, but they do not explicitly reference waves.
Phy 2.3: Analyze the nature of moving charges and electric circuits.	Phy.2.3.1 Explain Ohm's law in relation to electric circuits. Phy.2.3.2 Differentiate the behavior of moving charges in conductors and insulators.	PHY 151: energy, power	Both expect students to understand moving charges and electric circuits. NCCCS has

NC Standard Course of Study Physics Essential Standards	NC Standard Course of Study Physics Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	Phy.2.3.3 Compare the general characteristics of AC and DC systems without calculations. Phy.2.3.4 Analyze electric systems in terms of their energy and power. Phy.2.3.5 Analyze systems with multiple potential differences and resistors connected in series and parallel circuits, both conceptually and mathematically, in terms of voltage, current and resistance.	PHY 152: direct-current circuits, alternating-current circuits,	general topics that could incorporate the NC SCOS objectives.
Phy 3.1: Explain charges and electrostatic systems	Phy.3.1.1 Explain qualitatively the fundamental properties of the interactions of charged objects. Phy.3.1.2 Explain the geometries and magnitudes of electric fields. Phy.3.1.3 Explain how Coulomb's law relates to the electrostatic interactions among charged objects. Phy.3.1.4 Explain the mechanisms for producing electrostatic charges, including charging by friction, conduction, and induction. Phy.3.1.5 Explain how differences in electrostatic potentials relate to the potential energy of charged objects.	PHY 152: electrostatic forces, electric fields, electric potentials	Both expect students to understand charges and electrostatic systems. NCCCS has general topics that could incorporate the NC SCOS objectives.
Phy 3.2: Explain the concept of magnetism.	Phy.3.2.1 Explain the relationship between magnetic domains and magnetism. Phy.3.2.2 Explain how electric currents produce various magnetic fields. Phy.3.2.3 Explain how transformers and power distributions are applications of electromagnetism.	PHY 152: magnetostatic forces, magnetic fields, electromagnetic induction	Both expect students to understand magnetism. NCCCS has general topics that could incorporate the NC SCOS objectives.

Concepts from NCCCS course descriptions not covered by NC SCOS: heat (PHY 151), fluid mechanics (PHY 151). Note that these concepts are included in the Physical Science standards.

Alignment Matrix: American History

High School Class: American History (Fall 2021 implementation)

Essential Standards and objectives appear in table below. A special note: The American History Essential Standards are accompanied by unpacking documents that have been approved by the State Board and that provide guidance to teachers about ways in which the themes present in the standards can be applied to significant events in U.S. history.

Source: American History Standards 2021, https://www.dpi.nc.gov/media/11820/open

College Subjects: American History I (HIS 131) and American History II (HIS 132)

Source: NCCCS Combined Course Library

Note about course descriptions: Each history course has an overarching course description; specific learning outcomes are identified at the campus level.

College course descriptions

HIS 131: This course is a survey of American history from pre-history through the Civil War era. Topics include the migrations to the Americas, the colonial and revolutionary periods, the development of the Republic, and the Civil War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early American history.

HIS 132: This course is a survey of American history from the Civil War era to the present. Topics include industrialization, immigration, the Great Depression, the major American wars, the Cold War, and social conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War.

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
Inquiry Strand			
AH I.1: Apply the inquiry model to analyze and evaluate social studies topics and issues in order to communicate conclusions and take informed actions	1.1 Compelling Questions • Identify issues and problems in social studies. • Formulate questions based upon disciplinary concepts. I.1.2 Supporting Questions • Identify related issues and problems related to the compelling question. • Formulate supporting questions. I.1.3 Gathering and Evaluating Sources	HIS 131 and 132: Students should be able to analyze significant political, socioeconomic, and cultural developments	Both expect students to be able to analyze historical events. NC SCOS has much more detailed expectations related to skills and expects students to be able to take informed action (this last expectation is not referenced in the NCCCS standards).

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	• Locate credible primary and secondary sources. • Identify a variety of primary and secondary sources in support of compelling and supporting questions. • Summarize the central ideas and meaning of primary and secondary sources through the use of literacy strategies. • Determine the origin, context, and bias of primary and secondary sources. • Differentiate between facts and interpretation of sources. • Evaluate competing historical narratives and debates among historians. I.1.4 Developing Claims and Using Evidence • Analyze data from charts, graphs, timelines, and maps. • Analyze visual, literary, and musical sources. • Examine change and continuity over time. • Analyze causes, effects, and correlations. • Determine the relevance of a source in relation to the compelling and supporting questions. I.1.5 Communicating Ideas • Construct written, oral, and multimedia arguments. • Support arguments with evidence and reasoning while considering counterclaims. • Use proper formatting in citing sources for arguments. • Develop new understandings of complex historical and current issues through rigorous academic discussions. • Participate in rigorous academic discussions emphasizing multiple viewpoints in which claims and evidence are acknowledged, critiqued, and built upon in order to create new understandings of complex historical or current issues.		

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	I.1.6 Taking Informed Action • Generate ideas through which the inquiry facilitates change. • Devise a plan to enact change based on the results of the inquiry. • Organize and take individual or collaborative action in order to effect change and inform others.		
Behavioral Sciences Strand			
AH B.1: Evaluate American identity in terms of perspective change and continuity	AH.B.1.1 Critique multiple perspectives of American identity in terms of American exceptionalism. AH.B.1.2 Critique multiple perspectives of American identity in terms of opportunity, prosperity, and crisis. AH.B.1.3 Critique multiple perspectives of American identity in terms of oppression, stereotypes, diversity, inclusion, and exclusion. AH.B.1.4 Critique multiple perspectives of American identity in terms of individualism and conformity. AH.B.1.5 Explain how various immigrant experiences have influenced American identity. AH.B.1.6 Explain how the experiences and achievements of minorities and marginalized peoples have contributed to American identity over time in terms of the struggle against bias, racism, oppression, and discrimination. AH.B.1.7 Explain how slavery, xenophobia, disenfranchisement, and intolerance have affected individual and group perspectives of themselves as Americans.	HIS 132: Immigration, social conflict HIS 131 and 132: students should be able to analyze significant political, socioeconomic, and cultural developments	NCCCS has reference to immigration and social conflict, which could encompass some of the NC SCOS objectives. NCCCS has no specific reference to American identity. NCCCS does not specifically expect students to consider the role of different groups.
AH B.2 Analyze the relationship of tradition and progress in terms of scientific,	AH.B.2.1 Differentiate among scientific and technological innovations in terms of how they have reinforced and redefined American values and beliefs.	HIS 131 and 132: students should be able to analyze significant …cultural developments	Beyond a general reference to cultural developments, NCCCS has no specific reference to science/technology or religion.

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
technological, intellectual and cultural development.	AH.B.2.2 Distinguish religious beliefs and human reasoning in terms of their influence on American society and culture.		
Civics and Government Strand			
AH C&G.1 Evaluate the relationship between the American people and the government in terms of freedom, equality, and power.	AH.C&G.1.1 Explain how various views on freedom and equality contributed to the development of American political thought and system of government. AH.C&G.1.2 Critique the extent to which various levels of government used power to expand or restrict the freedom and equality of American people. AH.C&G.1.3 Explain how various individuals and groups strategized, organized, advocated and protested to expand or restrict freedom and equality. AH.C&G.1.4 Explain how racism, oppression, and discrimination of indigenous peoples, racial minorities, and other marginalized groups have impacted equality and power in America.	HIS 132: Social conflict HIS 131 and 132: Students should be able to analyze significant political….developments	Both expect students to look at political developments. NCCCS has no specific reference to governmental systems. NCCCS does not specifically expect impacts to be considered for different groups.
AH C&G.2 Analyze the American political system in terms of conflict, compromise, and consequence.	AH.C&G.2.1 Distinguish decisions by executive, legislative, and judicial leaders in terms of resolving conflict and establishing compromise. AH.C&G. 2.2 Explain the development and realignment of political parties as reflected in key elections. AH.C&G.2.3 Deconstruct changes in balance of power between local, state, and federal government in terms of conflict and compromise.	HIS 131 and 132: Students should be able to analyze significant political…developments HIS 131: Development of the Republic	Both expect students to look at political developments. NCCCS has no specific reference to political systems.
Economics Strand			
AH E.1 Analyze the American economic system in terms of affluence, poverty, and mobility	AH.E.1.1 Deconstruct multiple perspectives of American capitalism in terms of affluence, poverty, and mobility. AH.E.1.2 Explain how the relationships between entrepreneurship, management, labor, and consumers have impacted the quality of life in American society.	HIS 131 and 132: students should be able to analyze significant… socioeconomic…developments HIS 132: Great Depression, industrialization	Both expect students to look at economic developments. NCCCS has no specific reference to economic systems. NCCCS does not specifically expect impacts to be considered for different groups.

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	AH.E.1.3 Explain the causes of economic expansion and retraction and the impacts on the American people. AH.E.1.4 Compare how some groups in American society have benefited from economic policies while other groups have been systemically denied the same benefits. AH.E.1.5 Distinguish the role women and racial minorities have played in contributing to the economic prosperity of American society in terms of equity, equality, and mobility.		
Geography Strand			
AH G. 1 Understand how movement, settlement, and expansion influenced American development.	AH.G.1.1 Explain how environmental, technological, cultural, and economic factors influenced population distribution and patterns of migration and immigration. AH.G.1.2 Explain how geographic conditions and expansion have presented both opportunities and challenges in the development of America. AH.G.1.3 Explain the reasons for and effects of forced and voluntary migration on societies, individuals and groups over time. AH.G.1.4 Explain how slavery, forced migration, immigration, reconcentration and other discriminatory practices have changed population distributions and regional culture.	HIS 131: Migrations to the Americas HIS 132: Immigration	NCCCS has general topics that could encompass some of the NC SCOS objectives. NCCCS has no specific mention of slavery and involuntary immigration.
History Strand			
AH.H.1 Understand the reasons for American involvement in conflicts and the domestic and foreign impacts	AH.H.1.1 Explain the causes and effects of various domestic conflicts in terms of race, gender, and political, economic, and social factors. AH.H.1.2 Explain the causes and effects of various international conflicts/wars in terms of political, economic, and social factors.	HIS 131: Revolutionary period, Civil War HIS 132: major American Wars, Cold War	NCCCS has general topics that could encompass the NC SCOS objectives. NCCCS does not specifically expect impacts to be considered for different groups.

North Carolina Standard Course of Study American History Essential Standards	NC Standard Course of Study American History Clarifying Objectives	Relevant Excerpts from NC Community College System Course Description	Alignment
	AH.H.1.3 Differentiate the experience of war on groups and individuals in terms of contribution, sacrifice, and opposition.		
AH.H.2 Evaluate the relationship between America and other nations in terms of national interests and global interdependence.	AH.H.2.1 Explain how economic, social, and political interests have influenced the direction of American foreign policy. AH.H.2.2 Critique the extent to which American interaction with other nations has achieved national and global economic, social, and political goals. AH.H.2.3 Distinguish the extent to which American foreign policy has advanced the interests of historically privileged groups over the interests of historically marginalized groups	HIS 132: the major American wars, the Cold War	NCCCS standards do not explicitly focus on underlying issues of relationships with foreign powers.
AH.H.3 Analyze various turning points in American history in terms of perspective, causation, and change.	AH.H.3.1 Deconstruct various turning points in terms of multiple causation. AH.H.3.2 Use historical empathy and contextualization to deconstruct multiple perspectives of individuals and groups within various turning points. AH.H.3.3 Critique the extent to which economic, social, cultural, geographic, and political factors of various turning points changed the American historical narrative. AH.H.3.4 Compare how competing historical narratives of various turning points portray individuals and groups including marginalized people.	HIS 131: Students should be able to analyze significant political, socioeconomic, and cultural developments in early American history. HIS 132: Students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War.	Both expect students to analyze key events. NCCCS does not specifically expect impacts to be considered for different groups.

The State Board-approved American History unpacking documents provide guidance to teachers about how to connect the significant themes mentioned in the standards above to specific events that are explicitly included in the NCCCS course descriptions: colonial and revolutionary periods, the development of the Republic, and the Civil War (HIS 131); the Great Depression, the major American wars, the Cold War (HIS 132).

Alignment Matrix: World History

High School Class: World History (Fall 2021 Implementation)

Essential standards and objectives appear in table below. A special note: The World History Standards are accompanied by unpacking documents that have been approved by the State Board and that provide guidance to teachers about ways in which the themes present in the standards can be applied to significant events in world history.

Source: World History Standards 2021, https://www.dpi.nc.gov/media/11822/open

College Subjects: World Civilizations I (HIS 111) and World Civilizations II (HIS 112)

Source: NCCCS Combined Course Library

Note about course descriptions: Each History course has an overarching program description; specific learning outcomes are identified at the campus level.

College course descriptions

HIS 111: This course introduces world history from the dawn of civilization to the early modern era. Topics include Eurasian, African, American, and Greco-Roman civilizations and Christian, Islamic and Byzantine cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in pre-modern world civilizations.

HIS 112: This course introduces world history from the early modern era to the present. Topics include the cultures of Africa, Europe, India, China, Japan, and the Americas. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern world civilizations.

NC Standard Course of Study World History Essential Standards	NC Standard Course of Study World History Clarifying Objectives	Relevant excerpts from NC Community College System Course Description	Alignment
Inquiry Strand			
Apply the inquiry models to analyze and evaluate social studies topics and issues in order to communicate conclusions and take informed actions.	1.1 Compelling Questions • Identify issues and problems in social studies. • Formulate questions based upon disciplinary concepts. I.1.2 Supporting Questions • Identify related issues and problems related to the compelling question. • Formulate supporting questions. I.1.3 Gathering and Evaluating Sources	HIS 111 and 112: analyze significant political, socioeconomic, and cultural developments	Both expect students to analyze world history topics. NC SCOS has more detailed expectations related to skills and expects students to be able to take informed action.

NC Standard Course of Study World History Essential Standards	NC Standard Course of Study World History Clarifying Objectives	Relevant excerpts from NC Community College System Course Description	Alignment
	• Locate credible primary and secondary sources. • Identify a variety of primary and secondary sources in support of compelling and supporting questions. • Summarize the central ideas and meaning of primary and secondary sources through the use of literacy strategies. • Determine the origin, context, and bias of primary and secondary sources. • Differentiate between facts and interpretation of sources. • Evaluate competing historical narratives and debates among historians. I.1.4 Developing Claims and Using Evidence • Analyze data from charts, graphs, timelines, and maps. • Analyze visual, literary, and musical sources. • Examine change and continuity over time. • Analyze causes, effects, and correlations. • Determine the relevance of a source in relation to the compelling and supporting questions. I.1.5 Communicating Ideas • Construct written, oral, and multimedia arguments. • Support arguments with evidence and reasoning while considering counterclaims. • Use proper formatting in citing sources for arguments. • Develop new understandings of complex historical and current issues through rigorous academic discussions. • Participate in rigorous academic discussions emphasizing multiple viewpoints in which claims and evidence are acknowledged, critiqued, and built upon in order to create new understandings of complex historical or current issues.		

NC Standard Course of Study World History Essential Standards	NC Standard Course of Study World History Clarifying Objectives	Relevant excerpts from NC Community College System Course Description	Alignment
	I.1.6 Taking Informed Action • Generate ideas through which the inquiry facilitates change. • Devise a plan to enact change based on the results of the inquiry. • Organize and take individual or collaborative action in order to effect change and inform others.		
Behavioral Sciences Strand			
WH.B.1 Analyze how artistic, literary, philosophical, technological, and scientific ideas have developed and shaped society and institutions	WH.B.1.1 Deconstruct societies and institutions around the world in terms of the ways in which they were shaped by art, literature, philosophical thought, and religion, now and in the past. WH.B.1.2 Explain the impact of scientific and technological innovations on societal change around the world, both now and in the past.	HIS 111 and 112: analyze significant cultural developments	NCCCS references significant cultural developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention technological or scientific ideas.
WH.B.2 Understand the concept of identity in historic and contemporary societies in terms of its development and impacts	WH.B.2.1 Explain how shared values and beliefs of a culture impact national, tribal, and group identity, now and in the past. WH.B.2.2 Explain how competing religious, secular, racial, ethnic, and tribal group identities have impacted societies, now and in the past. WH.B.2.3 Explain the impact of global interaction on the development of national, tribal, and ethnic identities, now and in the past.		NCCCS does not explicitly mention identity.
Civics and Government Strand			
WH.C&G.1 Analyze the relationship between various societies and government in terms of freedom, equality, and power.	WH.C&G.1.1 Compare ways in which individuals, groups, and governments have gained and maintained power. WH.C&G.1.2 Distinguish ways in which religious and secular leaders and political systems have used power to sustain, expand, or restrict freedom and equality.	HIS 111 and 112: analyze significant political, socioeconomic, and cultural developments	NCCCS references significant political, socioeconomic, and cultural developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention the

NC Standard Course of Study World History Essential Standards	NC Standard Course of Study World History Clarifying Objectives	Relevant excerpts from NC Community College System Course Description	Alignment
	WH.C&G.1.3 Compare various revolutions, rebellions, and movements in terms of motive, consequence, and lasting impact on the freedom and equality of individuals and groups in society. WH.C&G.1.4 Compare ways racial, ethnic, and religious groups around the world have demonstrated resistance and resilience to inequities, injustice, and restriction of freedoms, now and in the past.		relationship between societies and government.
WH.C&G.2 Evaluate international diplomacy and the policies of a nation in terms of influence on global conflict and resolutions.	WH.C&G.2.1 Explain how policies and treaties have led to international conflict, now and in the past. WH.C&G.2.2 Critique the effectiveness of cooperative efforts among nations, groups, and international organizations in resolving conflicts and maintaining international stability, now and in the past.	HIS 111 and 112: analyze significant political developments	NCCCS references significant political developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention international diplomacy or the policies of nations.
Economics Strand			
WH.E.1 Understand the economic relationships between groups and nations in terms of power and interdependence.	WH.E.1.1 Explain how a desire for resources has impacted the global interactions and economic interdependence of empires, societies, and/or nations, now and in the past. WH.E.1.2 Explain the influence of economic interdependence on the development, interactions, and transformation of empires, societies, nations, and regions, now and in the past. WH.E.1.3 Compare how empires, groups, and nations have used economic decisions and policies to gain or maintain power, now and in the past. WH.E. 1.4 Explain how economic policies have challenged international interdependence and national and tribal sovereignty in various regions around the world.	HIS 111 and 112: analyze significant political and socioeconomic developments	NCCCS reference significant political and socioeconomic developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention economic relationships between groups and nations.
Geography Strand			

NC Standard Course of Study World History Essential Standards	NC Standard Course of Study World History Clarifying Objectives	Relevant excerpts from NC Community College System Course Description	Alignment
WH.G.1 Understand how movement has influenced societies now and in the past.	WH.G.1.1 Explain the reasons for and effects of immigration, forced migration, slavery, and settlement on empires, societies, and indigenous populations around the world, now and in the past. WH.G.1.2 Distinguish the relationship between movement, technology, and innovation in terms of cultural diffusion on societies around the world, now and in the past.	HIS 111 and 112: analyze significant political, socioeconomic, and cultural developments	NCCCS references significant political, socioeconomic, and cultural developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention the movement of peoples.
WH.G.2 Analyze the intentional and unintentional consequences of human-environment interaction.	WH.G.2.1 Deconstruct the relationship between geopolitics and demographic shifts in terms of intentional and unintentional consequences, now and in the past. WH.G.2.2 Differentiate technological innovation and human-environment interaction in terms of intentional and unintentional consequences, now and in the past.	HIS 111 and 112: analyze significant political, socioeconomic, and cultural developments	NCCCS references significant political, socioeconomic, and cultural developments, which could include some of the NC SCOS objectives. NCCCS does not explicitly mention human-environment interaction.
History Strand			
WH.H.1.1 Analyze historical events and issues in world history from a variety of perspectives.	WH.H.1.1 Distinguish key turning points in world history in terms of multiple causes and outcomes. WH.H.1.2 Explain the impact the experiences and achievements of individuals and groups from various indigenous, racial, ethnic, tribal, political, and religious backgrounds have had on historical events and current global issues. WH.H.1.3 Explain how ethnocentrism, stereotypes, xenophobia, and racism impact human rights and social justice of various groups, tribes, and nations around the world, now and in the past. WH.H.1.4 Distinguish the challenges indigenous peoples and ethnic and tribal groups around the world have experienced as a result of colonization, imperialism, and assimilation, now and in the past.	HIS 111 and 112: analyze significant political, socioeconomic, and cultural developments	Both expect students to analyze key events. NCCCS does not explicitly mention taking a variety of perspectives.

The State Board-approved World History unpacking documents provide guidance to teachers about how to connect the significant themes mentioned in the standards above to specific civilizations and time periods that are explicitly mentioned in the NCCCS course descriptions: Christian, Islamic, and Byzantine

cultures; cultures of Africa, Europe, India, China, Japan, and the Americas. The college course descriptions also include civilizations from prior to 1200 C.E. that are not covered by the high school standards: Eurasian, African, American, and Greco-Roman civilizations.