

Special Session: Report on NCGAP..... Kate Henz

Situation: Section 11.7 of Session Law 2015-241 directed the Board of Governors of The University of North Carolina (UNC) and the State Board of Community Colleges to report their findings on the impact of a North Carolina Guaranteed Admissions Program (NCGAP). The statute directing this study states that NCGAP seeks to achieve a more efficient and effective pathway to a bachelor’s degree, particularly for college-bound students who meet UNC minimum admission requirements but are on the lower end of high school performance.

Background: As required by the provision, The University of North Carolina General Administration (UNC-GA) and the North Carolina Community College System (NCCCS) explored approaches to meeting the goals expressed in the NCGAP provision. The analyses included investigating the following two implementation options that most closely meet the language in the NCGAP provision.

Assessment: The report explores two main options for implementation of NC GAP. First, system-wide implementation of NCGAP would raise again the UNC system-wide minimum high school grade point average (GPA) admission requirement. Second, campus-specific implementation of NCGAP – reduce acceptance rates at each of the 16 UNC constituent institutions. Based on the analysis of the 2009 cohort as well as information from the UNC Fall 2014 admitted class, the findings suggest the following:

- NCGAP will probably not increase the number of baccalaureate degrees obtained or reduce time to completion but rather could have the opposite effect, fewer baccalaureate degrees.
- Likely lower the cost of college education to the student and the state.
- Likely decrease debt resulting from student loans.
- Provide a credential for those students who complete the associate’s.
- Likely have an adverse effect on the state economy if, as the analysis suggests, fewer North Carolinians receive bachelor’s degrees that, on average, have higher wages and higher employment rates.
- Increase costs associated with program management and advising at both systems.
- Disparately impact rural, low-income; and minority students and families and/or increase “brain drain”.

As implementation of NCGAP was considered, an alternative approach to accomplishing the goals set forth in legislation is to monitor progress of current student success strategies at both UNC and NCCCS.

Action: This item is for information only.

Analysis of Findings and Recommendations Regarding NC Guaranteed
Admission Program (NCGAP)

Report to the Joint Legislative Education Oversight Committee, Fiscal Research
Division, and the Office of State Budget and Management

Submitted by:

The Board of Governors of The University of North Carolina, and
The State Board of Community Colleges

Reviewed by:

RTI, International

March 6, 2016

As required by:

Section 11.7 of Session Law 2015-241



3040 E. Cornwallis Road • PO Box 12194 • Research Triangle Park, NC 27709-2194 • USA
Telephone +1.919.541.6000 • Fax +1.919.541.5985 • www.rti.org

February 17, 2016

RTI International (RTI) has been closely involved in the conceptualization and implementation of the report prepared in accordance with Section 11.7 of North Carolina General Assembly Session Law 2015-241. Specifically, RTI reviewed and made suggestions on the sample, design, and interpretation of the evaluation of the proposed policy of the North Carolina Guaranteed Admissions Program (NCGAP).

In this partnership, RTI was charged with ensuring the design of the study met the rigorous standards of peer reviewed research. Throughout this process RTI staff had numerous conversations both via phone and in person with the report team members. These activities continued across the span of the project and touched on critical design issues such as sampling, matching procedures, outcomes of interest, statistical estimation, and dissemination of data. Throughout this process, the report team members responded to RTI's suggestions and criticisms and adjusted the models and documents accordingly.

RTI finds the results of the NCGAP analysis and the corresponding conclusions meet the standards of peer reviewed research and are both accurate and actionable. Particularly the design that uses propensity score analysis and the results that mirror the extant literature provide strong evidence and support for the conclusions of this policy's likely impact on the state of North Carolina.

A handwritten signature in black ink, appearing to read 'Laura Horn', written over a light blue horizontal line.

Laura Horn
Director, Center for Postsecondary Education
Education and Workforce Development
RTI International | 2150 Shattuck Avenue, Suite 800
Berkeley, CA 94704 | 510-665-8206

Table of Contents – NCGAP Report

Statement from RTI International	i
Purpose and Scope.....	1
I. Introduction	3
II. Background on UNC’s Graduation Rates	7
A. UNC Graduation Rates	8
B. Who is Included in Graduation Rates?	9
C. Alternative Metrics of Success	10
D. Section Key Takeaways	10
III. Data Analysis Findings and Limitations.....	12
A. Goal 1: To assist more students obtain a baccalaureate degree within a shorter time period.....	13
B. Goal 2: Lower the cost of college education to the student and state.....	16
C. Goal 3: Decrease debt resulting from student loans.	17
D. Goal 4: Provide a student with an interim degree to increase job opportunities if the student chooses not to continue postsecondary education.	17
E. Goal 5: Increase access to academic counseling to assist a student in selecting coursework aligned with educational and career goals.....	18
F. Section Key Takeaways	19
IV. Implementation Procedures	20
A. Step 1: Identify Students to Participate in NCGAP.....	20
Option 1: Raise again the UNC system-wide minimum admission requirements.....	20
Option 2: Reduce acceptance rates at each of the 16 UNC constituent institutions.....	22
B. Step 2: Serving NCGAP Participants in Community Colleges	24
C. Step 3: NCGAP Students Transfer to Universities.....	25
V. Fiscal Impact of NCGAP Implementation.....	26
VI. Alternative Idea: Another way to accomplish goals	28
VII. Conclusion.....	29

Table of Figures – NCGAP Report

Figure 1. Median lifetime earnings by highest educational attainment, 2009 dollars 3

Figure 2. Earnings and unemployment rates by educational attainment..... 4

Figure 3. UNC graduation rates at any UNC institution and national rate for public institutions 9

Figure 4. Enrollment trends in ACA 122 at North Carolina Community Colleges 15

Table of Tables – NCGAP Report

Table 1. Cost scenarios 16

Table of Appendices

Appendix A: NCGAP Provision	31
Appendix B: North Carolina Comprehensive Articulation Agreement	33
Appendix C: Report on Study of Bilateral Agreements and Partnerships between UNC and NCCCS	71
Appendix D: UNC Policy 700.1.1, Minimum Requirements for First-time Undergraduate Admissions Minimum Course Requirements	82
Appendix E: Technical Report.....	86
Appendix F: UNC & NCCCS Grad Rates by Institution	108
Appendix G: NCGAP Literature Review.....	111
Appendix H: Economic Impact.....	117
Appendix I: Demographic Impact of GPA Threshold	120

Table of Figures – Appendices

Figure E-1. Post-trim Common Support	93
Figure E-2. Predicted Probability of Graduation within 6 years for NCCCS Students	103
Figure E-3. Predicted Probability of graduation within 6 years for UNC Students	104

Table of Tables – Appendices

Table E-1. Sample Balance	94
Table E-2. Descriptive Statistics	97
Table E-3. Institutions Where UNC Students Started	99
Table E-4. Results of Regression Models	101
Table E-5. Summary of Main Effects	102
Table F-1. UNC 6-year graduation rate by institution	108
Table F-2. NCCCS Three-year graduation rate by college	109
Table H-1. NCGAP impact on degree attainment	118
Table I-1. Number and Percent of Fall 2014 New, First-Time Freshmen between 2.5 - 2.7 Weighted High School GPA by Institution	120
Table I-2. Number and Percent of Fall 2014 New, First-Time Freshmen between 2.5 - 2.7 Weighted High School GPA by Institution and Race/Ethnicity	121

Purpose and Scope

Section 11.7 of Session Law 2015-241 directed the Board of Governors of The University of North Carolina (UNC) and the State Board of Community Colleges to jointly study and evaluate how a deferred admission program for students identified as academically at risk would address five policy goals. The provision (Appendix A) seeks to achieve a more efficient and effective pathway to a bachelor's degree, particularly for college-bound students who meet UNC minimum admission requirements, but are on the lower end of high school performance. As directed, this report examines the impact of a North Carolina Guaranteed Admission Program (NCGAP). The legislative goals outlined in the provision include:

- Assisting more students to obtain a baccalaureate degree in a shorter time;
- Lowering the cost of a college education to students and the State;
- Decreasing debt resulting from student loans;
- Providing a student with an interim degree to increase job opportunities if the student chooses not to continue postsecondary education; and
- Increasing access to academic counseling to assist a student in selecting coursework aligned with educational and career goals.

In addition to evaluating the effectiveness of NCGAP on meeting the legislative objectives, as directed, the report also addresses potential procedures for implementing a deferred admission program and the fiscal impact NCGAP may have with regard to enrollment at UNC constituent institutions and at community colleges, the number of students who may participate in NCGAP, and its effect on FTEs.

As required by the provision, The University of North Carolina General Administration (UNC-GA) and the North Carolina Community College System (NCCCS) explored approaches to meeting the goals expressed in the NCGAP provision. The analyses included investigating the following two implementation options that most closely meet the language in the NCGAP provision.

1. System-wide implementation of NCGAP – Raise the UNC system-wide minimum high school grade point average (GPA) admission requirement.
2. Campus-specific implementation of NCGAP – Reduce acceptance rates at each of the 16 UNC constituent institutions.

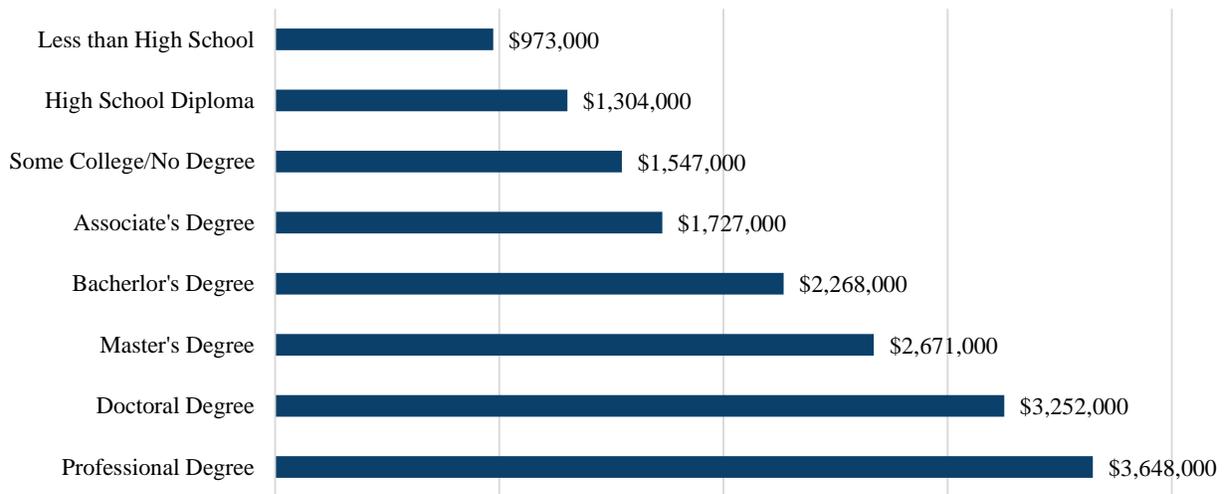
As required by the provision, UNC-GA and NCCCS investigated the potential impacts of NCGAP. Determining the impacts of implementation options requires complex statistical methods including propensity score analysis, traditional regression analysis, and sensitivity testing; as such, we contracted with RTI, International—a leading research and evaluation firm—

to provide technical assistance. The following organizations provided student-level data required to complete the analysis: Department of Public Instruction, North Carolina Community College System, University of North Carolina General Administration, National Student Clearinghouse, and North Carolina State Educational Assistance Authority.

I. Introduction

By focusing on increasing UNC's graduation rates and therefore the number of baccalaureate degree completers in North Carolina, we share the commitment of the General Assembly to provide more North Carolinians with the opportunity to earn baccalaureate degrees. Our shared understanding that degree attainment is positive not only for the individual who receives that degree but for the state economy as well is essential as UNC and NCCCS move forward in assisting North Carolina students and families reach their educational goals and aspirations. National data shows a college education translates into greater prosperity for individuals, which in turn translates into greater economic prosperity for the state. The national median annual wage for young full-time college-educated workers now is \$45,500, compared to \$30,000 for two-year degree/some college and \$28,000 for high school graduates.¹ Figure 1 illustrates, that over a lifetime, the payoff is greater, with baccalaureate degree holders earning almost \$1 million more than individuals with just a high school diploma and nearly \$550,000 more than those with an associate's degree.

Figure 1. Median lifetime earnings by highest educational attainment, 2009 dollars



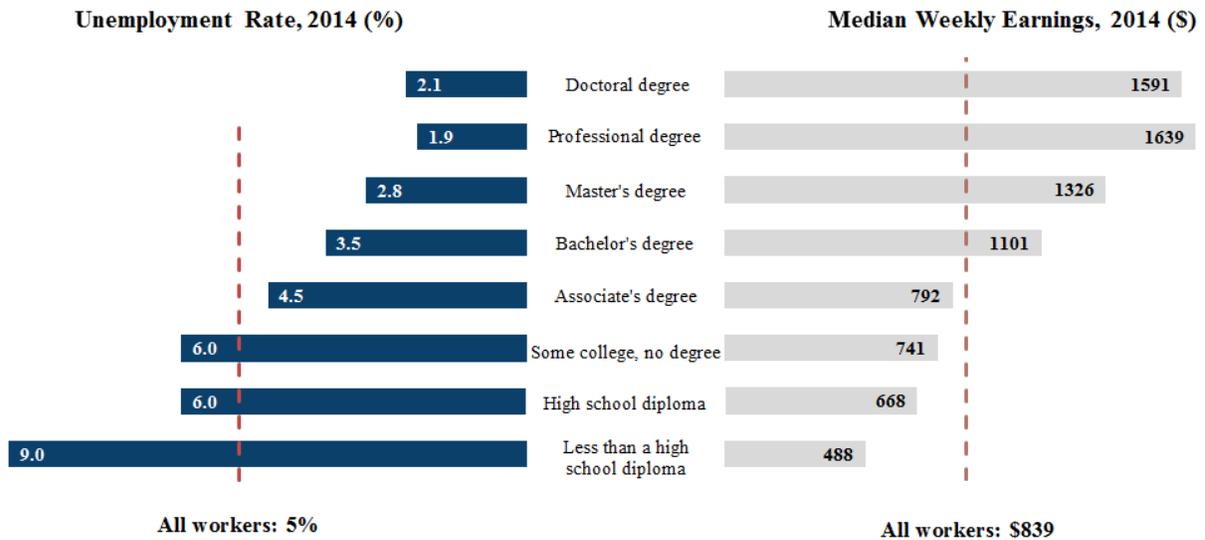
Source: The College Payoff: Education Occupations Lifetime Earnings Georgetown

Other benefits associated with higher educational attainment include higher employment rates and a lower chance of living in poverty. The unemployment rate for those with a bachelor's degree is 3.5%, compared to 4.5% for those with a two-year degree and 6.0% for those with a high school diploma. The percentage of bachelor's degree holders living in poverty is only

¹ Taylor, P., Fry, R., & Oates, R. (2014). The rising cost of not going to college. *Washington, DC: Pew Research Center.*

5.8% compared to 14.7% for those with associates degree/some college and 21.8% for high school graduates.²

Figure 2. Earnings and unemployment rates by educational attainment



Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.
 Source: Current Population Survey, U.S. Bureau of Labor Statistics, US Department of Labor.

Higher education, by its nature, increases knowledge and skills and results in greater individual marketability, wealth, and self-reliance. It also reduces dependence on public programs, such as Medicaid, and reduces the likelihood of incarceration.³ Higher education has been shown to be a good investment. According to experts from Federal Reserve Bank of New York, investment in a four-year degree, on average, is equivalent to an investment that returns of about 15 percent per year.⁴ As North Carolina positions itself to draw more high quality, high-wage businesses to our state, the UNC system and the NCCCS will play key roles in preparing a talented and sought after workforce.

The General Assembly rightly recognizes the close partnership between the UNC system and the North Carolina Community College System, since only together will North Carolina's degree attainment goals be reached. Both systems are proud to partners at the system and the institutional levels and this partnership has been recognized as leaders on initiatives such as the Comprehensive Articulation Agreement (CAA) and Reverse Transfer Program.

² Taylor, P., Fry, R., & Oates, R. (2014). The rising cost of not going to college. *Washington, DC: Pew Research Center.*

³ Trostel, P. (2015). It's not just about the money: The benefits of college education to individuals and to society. *Lumina Issue Papers.* Retrieved from: <https://www.luminafoundation.org/files/resources/its-not-just-the-money.pdf>

⁴ Abel, J. R., & Deitz, R. (2014). Do the benefits of college still outweigh the costs? *Current Issues in Economics and Finance, 20(3)*

The CAA is a state-wide agreement that guarantees admission to one of the 16 UNC institutions if a student graduates with an Associate in Arts or Associate in Science degree from one of the 58 North Carolina community colleges (See Appendix B for a copy of the CAA). The CAA helps ease the transfer process for students between NCCCS and UNC.

Although a number of states have provisions similar to North Carolina's with regard to guaranteed transfer for students who choose to pursue a "2+2" pathway, we could find no other state with similar statewide requirements as outlined in the NCGAP provision. However, examples of guaranteed admission programs similar to NCGAP exist at the institution level between individual four-year institutions and one or more regional community colleges. In fact, UNC constituent institutions have several programs that aim to help students transition from community colleges to four-year institutions. Those programs include:

- UNC-Chapel Hill's C-STEP program. This is a guaranteed admission program focused on low- to moderate-income students that serves approximately 200 to 250 students who first attend North Carolina community colleges prior to enrolling at UNC-Chapel Hill.
- Eagle Connect at North Carolina Central University. This program is a new residential, dual enrollment, transfer admissions program where Durham Tech students live on NCCU's campus and take advantage of the university's resources and activities while making progress in their intended major during their first and second years at Durham Tech.
- UNC Charlotte's Passport Program. This is a bridge program to make students more competitive for admission and increase the likelihood of their success once enrolled.
- Winston-Salem State Dual Admission Program. This partnership with Forsyth Technical Community College offers dual admission to students who are initially denied admission to WSSU but plan to enroll at WSSU after completing an associate's degree.

Additional programs, partnerships, and articulation agreements exist, with a full accounting available in the 2015 Report to the NC Legislature on the Study of Bilateral Agreements and Partnerships (See Appendix C).

North Carolina's nationally recognized Reverse Transfer Program helps NCCCS students who transfer to UNC prior to earning their associate's degree, achieve an interim degree while pursuing a bachelor's degree. The program facilitates the transfer of credits earned at UNC back to the community college, where the community college evaluates whether or not the student has earned the appropriate credits to receive a credential. To date, the program has awarded over

1,450 Associate in Arts and Associate in Science degrees, translating to an 8% annual increase in those degrees awarded.⁵

NCCCS transfer students are a large, growing, and critically important segment of the UNC student body. System-wide, approximately 28% of all undergraduates entered a UNC institution as a transfer student.⁶ Over half of all transfers to UNC are from the NCCCS, and these students represent the fastest growing segment of UNC's transfer population. Since 2010, transfers from NCCCS have increased almost 32%, a testament to the successful partnership between our two systems and the success of the CAA.⁷

Still, University policies recognize that not every student is ready for university-level work, which is why the UNC Board of Governors ("the Board") recently raised minimum admission requirements and monitors these and other academic requirements consistently. A more detailed discussion on this important topic will follow.

In order for North Carolina to have a diverse and well-rounded workforce, not every single student may need a four-year degree to be successful. The opportunity to earn that degree, however, needs to exist for every North Carolinian and each student needs to be encouraged to pursue their talents, be supported in those endeavors, and be educated about the pathways they and their families may choose to get them where they want to go.

⁵ See: <http://www.nccommunitycolleges.edu/news-center/news/more-1400-students-have-earned-associate-degrees-through-north-carolina%E2%80%99s-reverse>

⁶ University of North Carolina – General Administration. (2016). *The University of North Carolina Enrollment Report Fall 2015*. Retrieved from http://northcarolina.edu/sites/default/files/documents/item_5_-_fall_2015_enrollment_report-3.pdf

⁷ University of North Carolina – General Administration. (2015). *The University of North Carolina Transfer Student Report 2014*. Retrieved from http://www.northcarolina.edu/sites/default/files/documents/transfer_student_report_-_october.pdf; University of North Carolina – General Administration. (2016). *The University of North Carolina Enrollment Report Fall 2015*. Retrieved from http://northcarolina.edu/sites/default/files/documents/item_5_-_fall_2015_enrollment_report-3.pdf

II. Background on UNC's Graduation Rates

The provision language directing this study of NCGAP focuses on the University's admissions standards and expresses the view that university graduation rates are too low. Research strongly supports that multiple factors influence degree completion, and these factors can be grouped into categories such as: student characteristics (e.g., academic performance, work, socioeconomic status), external factors (e.g., high school preparation, external responsibilities such as family, number of other institutions attended), institutional factors (e.g., financial aid, integration into academic and co-curricular programs, advising), and shared external-institutional factors (e.g., on-campus employment, early completion of core math). These all apply not just to four year universities like UNC but to community college student success as well. The remedies explored here include alternative approaches to raising admissions standards, and this section provides context regarding current graduation rates and admissions standards.

The UNC Board recognizes that one strategy to improve graduation rates is to admit better prepared students. Pursuant to state law, the Board "shall be responsible for the general determination, control, supervision, management and governance of all affairs of the constituent institutions. For this purpose the Board may adopt such policies and regulations as it may deem wise" GS 116-11(2). Under this authority, the Board develops policies and regulations related to minimum admission standards of each of the constituent institutions. This admissions policy, UNC Policy 700.1.1, Minimum Requirements for First-time Undergraduate Admissions Minimum Course Requirements (Appendix D), was originally adopted in 1984 and recently has been amended, in 2009 and 2015.

The Board of Governors carefully weighs increasing admission standards against restricting access to North Carolina's public four-year institutions. In 2008, the Board revised UNC Policy 700.1.1 to incrementally increase admission standards over a five-year period. The gradual increase allowed the University to communicate the change to North Carolina school districts and pre-college advisors. North Carolina families, students, and institutions were given the opportunity to plan and adjust to the new requirements.

The Board's policy change was significant. Most impactful, the minimum high school GPA increased from a 2.0 in 2009 to a 2.5 in 2013. **The full impact of increased admission standards on the 4- and 6-year graduation rates will not be realized until the graduating classes of 2017 and 2019, respectively.** Though we will not know the precise effect of the policy change for a few more years, analysis of the most recent graduating class excluding students whose high school GPA was less than a 2.5 GPA suggests the projected impact of the policy changes the Board has already taken is an increase of nearly two percentage points in the 6-year graduation rate.⁸ The six UNC constituent institutions with the lowest 6-year graduation

⁸ From UNC-GA's data files: "z086_NCGAP_with_H"

rates will see an average increase of nearly four percentage points, moving from an average 45.0% to just short of 50% at an average of 49.0%.⁹ Of special note, these six institutions comprise only 18% of the total undergraduate headcount for the UNC system.¹⁰

Restricting access is not the only way to increase graduation rates. The UNC system has been working diligently to streamline curriculum, provide wrap-around services, and improve advising. The results of these efforts are evident as seen in the last five years' increase in graduation rates (see Figure 3).

A. UNC Graduation Rates

The following figure provides the graduation rates for first-time students who graduate from one of the sixteen constituent institutions. The UNC system has seen more than a five percentage point increase in 4-year graduation rates and a three percentage point increase in 6-year graduation rates within the last five years. UNC graduation rates also exceed the national average for public institutions by a wide margin of almost 10 percentage points or 17% higher. Note, the substantial increase between the four-year and five-year graduation rate, **on average UNC undergraduates who graduate within six-years take just over four years to graduate.** This reflects that most students take only one additional semester to graduate, not a full year or two more.¹¹ This is important context and we are proud of our recent achievements, but we are committed to doing better. UNC is working to improve advising and course offerings to help more students graduate sooner.¹²

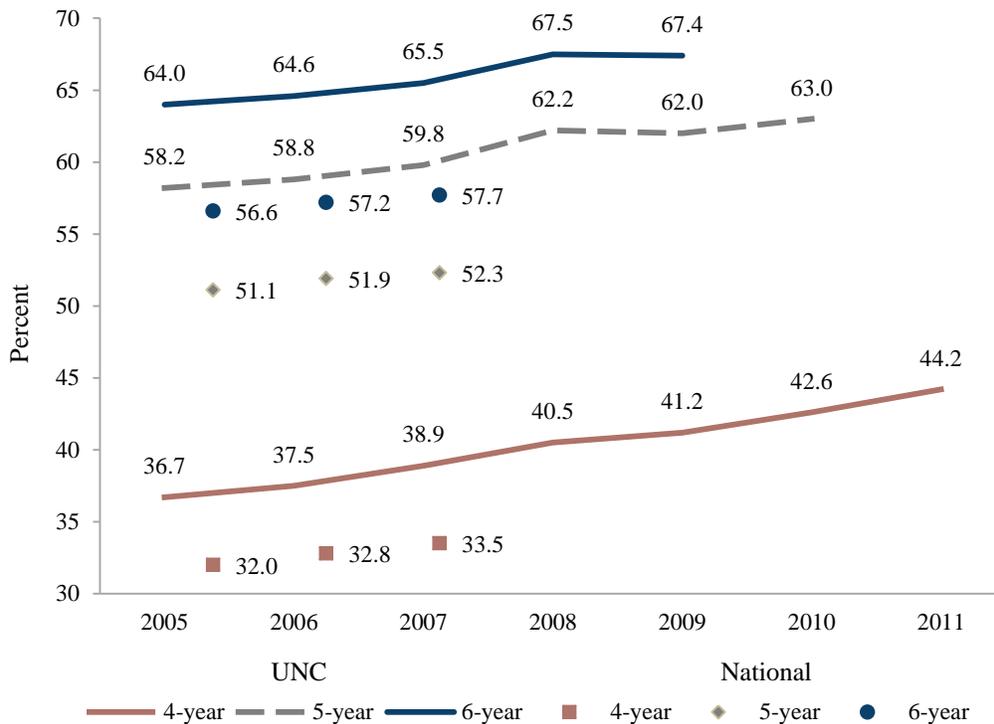
⁹ From UNC-GA's data files: "z086_NCGAP_with_H"

¹⁰ University of North Carolina – General Administration. (2016). *The University of North Carolina Enrollment Report Fall 2015*. Retrieved from http://northcarolina.edu/sites/default/files/documents/item_5_-_fall_2015_enrollment_report-3.pdf

¹¹ 2009 FTFT Freshman who earned a degree at any UNC institution took on average 8.5 fall/spring semesters and a little less than two summer terms to graduate. From UNC-GA's data files: "Z091_NCGAP 1.8.16"

¹² Examples include implementation of UNC Board of Governor Policy 400.1.5 and Regulation 400.1.5[R] "Fostering Undergraduate Student Success," course redesign for gateway courses, early warning systems, and other high impact practices.

Figure 3. UNC graduation rates at any UNC institution and national rate for public institutions



Source: UNC-GA, U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 2001 and Spring 2007 through Spring 2014, Graduation Rates component.

B. Who is Included in Graduation Rates?

Commonly used measures of student success, e.g., 4-year and 6-year graduation rates, utilize indicators from the US Department of Education’s Integrated Postsecondary Education Data System (IPEDS) for first-time, full-time freshmen who enter only in the fall. The origin is noteworthy since the graduation rate concept was moved forward because of athletics, in part a response to the NCAA and the 1988 Student Athlete Right to Know Act. Now, widespread use of graduation rates enables institutions to benchmark student achievement against national trends and peer institutions. In spite of the frequent use of IPEDS data, their definitions of student cohorts exclude transfer and part-time students. As an example, if a student starts at one institution and transfers to another, the IPEDS metric penalizes the institution from which the student first enrolled, even if that student successfully graduated at another institution. **For UNC, the students that are excluded from the traditional IPEDS definition is significant, slightly more than one-third (34%) of all 2014 undergraduates.**¹³ At some institutions, like

¹³ University of North Carolina – General Administration. (2015). *The University of North Carolina Transfer Student Report 2014*. Retrieved from http://www.northcarolina.edu/sites/default/files/documents/transfer_student_report_-_october.pdf

UNC Charlotte and Fayetteville State University, over 40% of their undergraduate student body is excluded from these traditional metrics of success because of the high transfer student populations at their institution. Thus it is important to look at alternative metrics of success that capture a greater proportion of the students served by the University.

C. Alternative Metrics of Success

Recognizing the limitations of these common metrics, alternate, more inclusive metrics have been developed by national non-profits. The College Portrait was created as part of the Voluntary System of Accountability™ (VSA); a program designed to provide greater accountability through accessible, transparent, and comparable information (www.collegeportraits.org). The VSA supplements traditional IPEDS measures of retention and graduation by expanding data to reflect graduation at any institution and includes students who remain enrolled. It is an improved way to report undergraduate student progress and completion by including a greater proportion of students and students who enroll in multiple higher education institutions. For those students who remain enrolled for longer than six years, the vast majority of these students are not continuously enrolled, but stop-out for several semesters or move to part-time status and take only one or two classes to accommodate work schedules or address family or health issues. **Usual measures of student completion, including government-led efforts, usually underreport student achievement because they do not account for an increasingly mobile student population.**

D. Section Key Takeaways

- The Board of Governors carefully weighs increasing admission standards against restricting access to North Carolina's public four-year institutions and is committed to improving graduation rates and time-to-degree for students.
- The UNC Board of Governor's recent increase in minimum admissions requirements is projected to positively affect the 4- and 6-year graduation rates, but will not be realized until the graduating classes of 2017 and 2019, respectively.
- If the recent policy changes had been in effect for the most recent graduating class, system averages would have increased by 2%, making the system wide average 69% and the schools with the lowest 6-year graduation rates would have increased by 4%, making the average graduation rate for those institutions 49%. Importantly, the institutions with the lowest 6-year graduation rates make up only 18% of the total UNC system undergraduate student population.
- UNC graduation rates have improved within the last five years and are nearly ten percentage points above the national rates for public institutions.
- The average time-to-degree for the most recent 6-year graduating cohort was just over four years, or roughly 9 semesters.

- Usual measures of student completion, including government-led efforts, usually underreport student achievement because they do not account for an increasingly mobile and non-traditional student population; under more comprehensive measures UNC institutions perform even better.

III. Data Analysis Findings and Limitations

The NCGAP proposal seeks to achieve a more efficient and effective pathway to a bachelor's degree and provides a list of goals associated with the implementation of NCGAP. To precisely determine the impacts of starting one's baccalaureate education at a community college versus a UNC institution would require a randomized controlled trial; however, such a study is not feasible. With the assistance of RTI, International, UNC-GA and the NCCCS collaborated to plan an analysis, using the best student data available, to estimate the impact of implementing the NCGAP proposal on student outcomes.

The analytical sample, ultimately selected by UNC-GA and RTI after meetings and discussions with the NCCCS, included 971 students who graduated from a NC public high school in spring of 2009 with a 2.5 to 2.7 weighted high school GPA, took an SAT, applied to a minimum of one UNC institution, and enrolled in either a NCCCS or UNC institution in the fall of 2009. This sample included 701 students who started at a UNC institution and 270 students who started at a NCCCS institution.¹⁴ Additional details can be found in the Technical Report (Appendix E).

The following provides a summary of findings from the 2009 cohort analysis associated with each of NCGAP's goals. **However, it is important to note the limitations of this analysis.** These outcomes are associated with students who started their postsecondary experience before many student success initiatives, both at UNC and the NCCCS, and the most recent Comprehensive Articulation Agreement (CAA) were implemented. It also cannot take into account all of the socioeconomic and other factors that may have led to a student's decision to enroll in a particular college or university. Further, it is unclear whether the students that started at a community college in the 2009 cohort analysis had the same commitment to completing a baccalaureate degree as those who would participate in NCGAP.¹⁵ Even with the best available student dataset constructed here to examine possible impacts, only the use of a prospective random assignment study of students to a community college or UNC institution can give true causal estimates of starting at one or the other systems.

¹⁴ Statistically, these numbers are sufficient to conduct required analyses with the power to describe meaningful differences.

¹⁵ A major hurdle you have to overcome when attempting an analysis like this is to infer intent of those students who began at a NCCCS institution. By intent, we mean intent to earn a Bachelor's degree. This is not an issue for those students who began at a UNC as they applied, were accepted, and enrolled in an institution whose main function is to confer BA degrees. However, intent is unclear for those students who began at a NCCCS institution. For example, if we assumed that all students who started at a NCCCS institution intended to earn a BA degree, we would *overstate* the effect of starting at a community college because not all NCCCS students intend to earn a BA. On the other hand, if we include only those NCCCS starters who transferred to a UNC, we would *understate* the difference as there are many students who initially intended to earn a BA but were unsuccessful and did not transfer. We operationalized intent by only including students who started at a NCCCS institution and applied to a UNC institution when they were a senior in high school. These students, we argue, were seriously considering matriculating at a UNC institution as they took the time and effort to both take the SAT and apply.

A. Goal 1: To assist more students obtain a baccalaureate degree within a shorter time period.

The analysis indicates there is no evidence that NCGAP is likely to increase the number of baccalaureate degrees obtained or reduce time to completion. For students, in the select data set described above, who entered in 2009 with a high school GPA between 2.5-2.7, the 6-year baccalaureate graduation rate for students who started at NCCCS and transferred to UNC is 11%, compared to 36% for students who directly entered into a UNC institution (see Appendix F for table of the overall graduation rates for all students at the 16 UNC constituent institution and the 58 NCCCS colleges).^{16,17} This difference replicates results found in both national and state-level peer-reviewed studies that investigate the community college pathway to baccalaureate degree completion, where all conclude that students who start at a community college are less likely to complete bachelor's degrees when compared to students who start at four-year institutions (see Appendix G for a comprehensive literature review). However, while those studies are important, we know that many efforts undertaken at UNC and the NCCCS, especially jointly like the CAA with its advancements in 2014, were/are not in play in other states, especially during the study periods. Even prior to the revisions of the CAA, it is clear Associate in Arts (AA) and Associate in Science (AS) degree transfers from NCCCS are successful at UNC institutions. As reported in the University of North Carolina Transfer Student Report 2015, transfer students, regardless of high school GPA, entering UNC as juniors in 2009 graduated within four years after transfer at a rate of 71% compared to an 85% graduation rate for non-transfer juniors. Within the transfer population, NCCCS transfers with an AA/AS degree and UNC-to-UNC transfers, again regardless of high school GPA, had the highest graduation rate, 74%.

As noted above, the analysis cannot control for all possible differences in student characteristics, but the data selected construct possible 'real' student groups for comparison. If one assumes that the students who participate in NCGAP are significantly similar to those in the 2009 cohort analysis, the study indicates a probable decline in the six-year baccalaureate degree completion rate for the students participating in the program. As directed by the provision, the estimate suggests, based on the student characteristics of the 2009 cohort and moderate participation levels (see Section V for details), that there could be a reduction in baccalaureate degrees earned for the students affected by the program (see Appendix H for estimates and further detail).

¹⁶ From UNC-GA's data files: "NCGAP 09 Analytical File, line 182"

¹⁷ A more sophisticated analysis, which controls for various factors influencing student success, postulates that students who begin at a North Carolina community college are 20.5 percentage points less likely to complete a bachelor's degree within 6 years when compared to similar students who begin at a UNC institution (See Appendix E).

For students with similar high school academic records and demographic characteristics, direct UNC entrants graduate faster than students who begin at the community college. Of the students in the 2009 cohort analysis that graduated within six-years, 31% of direct UNC entrants graduated within four-years compared to only 10% of students who started in the NCCCS.¹⁸

This difference is not unique to North Carolina. Transfer students across the nation tend to experience longer time-to-degree. Both UNC and NCCCS are committed to helping all students graduate faster. Our recognition of the barriers to successful transfer that likely impacted the referenced 2009 cohort led to the revision of the 1997 Comprehensive Articulation Agreement (CAA). The revised CAA signed in February 2014 demonstrates that mutual commitment.

In addition to improving the transfer of credits (ensuring the transfer equivalency of the first 30 hours), the 2014 CAA reduced the number of credit hours in the AA/AS standard from between 64-65 hours to 60-61 and also established more well-defined major (baccalaureate) pathways. Though we have not yet investigated the efficacy of these revisions, given the recent implementation, we fully expect that these revisions, along with our strengthened partnership and enhanced communication among the transferring institutions, should improve baccalaureate completion.

Noting that there are two educational time-frames to be considered for our students: 1) time spent at the community college (including full-time or part-time enrollment), and 2) time spent at the senior institution (including full-time and part-time enrollment), it is important to ensure effective implementation of other strategies that need to be considered as we focus on success of time to completion.

Students must be supported in making more informed decisions earlier in their educational pathway. Addressing this need is partially met by another important component of the 2014 CAA, the requirement for transfer degree-seeking community college students to successfully complete ACA 122.

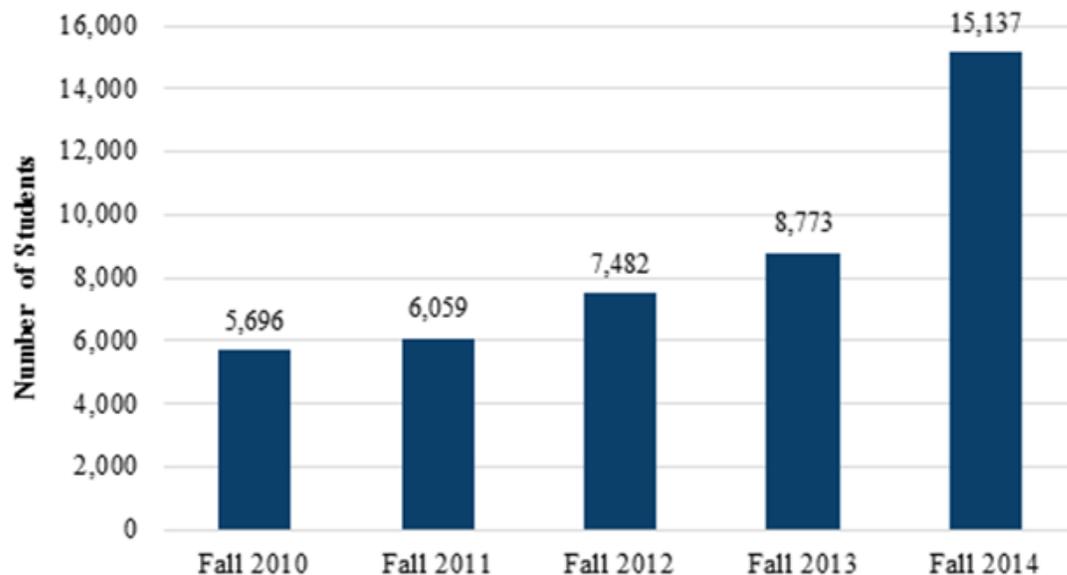
ACA 122, College Transfer Success, is a required course in the Associate in Arts and Associate in Science Curriculum Standards. This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. To ensure maximum transferability of credit, students will be advised to select a transfer major and preferred transfer university, before completing 30 semester hours of credit. Topics in this course include the CAA, college policies and culture, career

¹⁸From UNC-GA's data files: " NCGAP 09 Analytical File, lines 214-222"

exploration, gathering information on senior institutions, strategic planning, critical thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to aid them in the successful transition to one of the sixteen UNC constituent institutions. Though we are hopeful this newly standardized and revised course will improve student success, several more years are needed, given the recent changes, to determine the effectiveness of this promising intervention.

In Figure 4 below, taken from the 2015 CAA report to the Joint Legislative Education Oversight Committee, the enrollment in ACA 122 has steadily increased and is expected to assist students in needed early decisions regarding transfer and program major choices and requirements.

Figure 4. Enrollment trends in ACA 122 at North Carolina Community Colleges



Further, NCCCS has invested heavily in developing more reliable and valid assessment and placement instruments and strategies as well as improving the delivery of remedial education, which has reduced the number of attempted credit hours and is smoothing the transition to college-level courses. In particular, while developmental education comprised 13.8% of the total North Carolina Community College system-wide curriculum FTE in 2010-2011, it only comprised 5.6% of the total curriculum FTE in 2014-2015. In addition, credit level math enrollments increased by 8% in 2014 over the previous year including greater than 7% increase in number of credit level math course successes (Grade of C or higher) during the same time-frame. Early data from one NCCCS institution has also shown completion of gatekeeper math tied to double rates of credential completion and transfer. Had these

strategies that target the time students spend at the community college (including full-time and part-time enrollment) been in place when the referenced 2009 cohort was enrolled, one could expect to see improved transfer student outcomes (i.e., fewer attempted hours and faster time to associate degree).

B. Goal 2: Lower the cost of college education to the student and state.

The initial cost to educate a student through an NCGAP program is less, but these savings may be significantly diminished if the student fails to complete a baccalaureate degree. Based on an analysis of the attendance patterns of students who would likely be identified to participate in NCGAP, we estimate that it would cost the State roughly \$8,000 less per student if he/she completes an associate degree before transferring to and completing a baccalaureate degree at a UNC institution.¹⁹ This difference may be surprising, but it is important to remember that we are comparing the cost for students to receive only a bachelor’s degree (the oft-cited cost per UNC degree is reflective of all degrees including masters, professional and doctoral degrees) and roughly half of the credit hours for transfer students are taken at UNC. Likewise, the analysis estimates that the student would save approximately \$1,750 in tuition. Table 1 summarizes the range of costs, which represent the best case scenario; where a student attends a community college and completes an associates within two years. With the implementation of the most recent CAA, the difference in the number of credit hours taken to graduate between students who start at a community colleges and a UNC institution will hopefully decline, which could increase these savings.

Table 1. Cost scenarios

Cost Scenarios	CC Approp. Per FTE	UNC Approp. Per FTE	Total Appropriation per FTE	CC Receipts per FTE	UNC Receipts per FTE	Total Receipts per FTE
Four Years Total						
4 Years at UNC	\$ -	\$ 28,797	\$ 28,797	\$ -	\$ 13,481	\$ 13,481
2 Years at CC 2 at UNC	\$ 5,496	\$ 14,607	\$ 20,103	\$ 4,736	\$ 6,938	\$ 11,674
Difference			\$ 8,693			\$ 1,807
Six Years Total						
6 Years at UNC	\$ -	\$ 35,792	\$ 35,792	\$ -	\$ 20,455	\$ 20,455
2 Years at CC 4 at UNC	\$ 5,496	\$ 22,994	\$ 28,490	\$ 4,736	\$ 14,018	\$ 18,754
Difference			\$ 7,301			\$ 1,701

¹⁹ UNC direct entrants with GPA’s between 2.5 and 2.7 take a median of 150 credit hours to graduate, where NCCCS transfers with an associate of arts or associates of science (AA/AS) who transfer within three years take a median of 158 credit hours to graduate (75 credit hours at the community college and 83 credit hours at UNC). From UNC-GA’s data files: “ NCGAP Finance Model File, Line 124, 245 & 246”

Similarly for students who do not complete a baccalaureate degree, the State and the student would save by starting at a community college.²⁰ However, if NCGAP students graduate with a baccalaureate degree at lower rates than if they had begun at UNC institutions, these savings may be offset by lower future wage earnings. Based again on the 2009 cohort, we estimate that, for this particular student group, the state economy could lose approximately \$4.3 to \$5.1 million in wages annually.²¹ That figure might grow as the pay gap between baccalaureate degree completers and non-completers widens over time.

C. Goal 3: Decrease debt resulting from student loans.

NCGAP would likely result in less accumulated debt for students who participate in the program. Based on a statistical model that controlled for baccalaureate completion, students who started at a community college and took out loans saved an accumulated average of \$4,600 over the course of their studies when compared to students who began at UNC.²² Though the cost to the student is indeed less in the short-term, transfer students, on average, take longer to graduate and therefore, the savings must be weighed against delaying entry into the labor market – a real world consideration.

Note that if a student opts to attend a private or out-of-state public institution in lieu of NCGAP participation, he/she could accumulate more debt. National data suggests that for those students that take out loans, students who attend four-year private not-for-profits or out-of-state four year public institutions accumulate an additional \$1,884 and \$1,841 respectively in debt *annually* when compared to public in-state four-year institutions.²³

D. Goal 4: Provide a student with an interim degree to increase job opportunities if the student chooses not to continue postsecondary education.

NCGAP students who complete a college transfer associate degree, but do not complete a baccalaureate degree, are likely to be in a better position for employment as compared to students who have not completed any degree at all. Median weekly earnings for individuals with associate’s degrees are approximately \$50 higher than those with some college, but no degree, as demonstrated in Figure 2. Recognizing the importance of the college transfer associate degree, UNC and NCCCS have collaborated on the nationally recognized North Carolina Reverse Transfer Program

²⁰ Students who are on the lower end of high school performance and begin their academic careers at UNC attempt an average of 42 credit hours before they stop-out. This is compared to NCCCS students who likely intend to transfer attempting an average of 50 hours before they stop-out. From UNC-GA’s data files: “NCGAP Finance Model File, Line 113 & 117”

²¹ Figures include loss of annual income (net earnings for students who obtain an AA/AS but no Bachelor’s Degree) as well as accounts for the opportunity cost for UNC direct entrants who graduate in under 6 years.

²² From UNC-GA’s data files: “NCGAP Analytical File, line 292”

²³ U.S. Department of Education, National Center for Education Statistics, 2011-12 National Postsecondary Student Aid Study (NPSAS:12). No GPA restriction.

(<http://www.northcarolina.edu/?q=reversetransfer>), which helps students who start at a community college but transfer before receiving an associates earn an interim credential. To date, over 1,450 early transfers have received an associate credential while pursuing their baccalaureate degree.

E. Goal 5: Increase access to academic counseling to assist a student in selecting coursework aligned with educational and career goals.

Advising models vary, may be costly, and can cover a wide range of services depending on the specific model. Implementation of NCGAP will require investment in additional advising and admission services in UNC and NCCCS institutions as well as in high schools to ensure students receive specific guidance and support as they begin college through this path. Several existing models supporting students in transition from high school into their first year of college can be expanded to meet the needs of NCGAP students:

- NCCCS Career Coaches – G.S. 115D-21.5, as enacted in Section 10.14 of S.L. 2015-241 (H97) provides funding for this model that creates positions for college coaches in high schools. Coaches are employees of NCCCS located in high schools whose sole responsibility is to help high school students make good decisions about careers and to foster early connections with colleges. Some community colleges began similar programs prior to the General Assembly’s decision to support Career Coaches, which indicates a strong intent to engage students in early college advising. This approach gives students and their families the information they need to determine for themselves which pathway is appropriate for them – either the community college system or the UNC system.
- Career and College Ready Program – a model recently mandated by the General Assembly, (SL 2015-24, Sec. 10.13 (HB97)), to insure public high school seniors are academically college-ready (community college entrance standards) at the time of high school graduation. Although this program focuses on the academic preparation of students, activities within it could expand to provide guidance about college admission and the NCGAP pathway.
- NCCCS ACA 122 – a course required in college transfer associate degree programs designed to help students begin planning the transfer process. This course could be tailored to include planning and support specifically for NCGAP students. Additionally, several types of success courses are part of the community college common course library and offered by colleges to meet a variety of student needs.

Increasing and tailoring admission counseling and advising in public schools, community colleges and universities could be expensive, particularly because all institutions in the three

education sectors are involved and must together plan, implement and sustain a successful NCGAP program. Cost estimates range based on program model, but for the four guaranteed admission programs already in place within the UNC system, the costs average roughly \$1,000 per student per year. These costs represent joint work with only a handful of community colleges and in some cases, just one community college partner. Expanding these programs so every UNC institution had a part-time advisor at each of the 58 community colleges would possibly cost, based on existing programs, tens of millions of dollars. Institutions will need time to financially and logistically implement sound advising programs collaboratively designed and maintained by DPI, NCCCS and UNC-GA. Additionally, counselors and advisors in all three sectors will need initial training and on-going access to relevant information regarding NCGAP and transfer processes.

F. Section Key Takeaways

- The analysis, which employed sophisticated statistical estimation techniques, suggests that NCGAP is unlikely to increase the number of baccalaureate degrees obtained or reduce time to completion. Further, it suggests the possibility that NCGAP will result in fewer baccalaureate degrees for this student group within six years.
- The initial cost to educate a student through an NCGAP program is less, but these savings may be significantly diminished if the student fails to complete a baccalaureate degree.
- NCGAP would potentially result in less accumulated debt for students who participate in the program. For the portion of students who choose a private or out-of-state four-year institution as an alternative to the community college path dictated by NCGAP, their debt will likely increase.
- NCGAP students who complete a college transfer associate degree, but do not complete a baccalaureate degree may likely be in a better position for employment as compared to students who have not completed any degree at all.
- Advising models vary, can be costly, and cover a wide range of services depending on the model. Implementation of NCGAP will require investment in additional advising and admission services in UNC and NCCCS institutions as well as in high schools to ensure students receive specific guidance and support as they begin college through this path.

IV. Implementation Procedures

Section 11.7 directed this study to also recommend procedures for implementing NCGAP. To clearly consider potential procedures, NCGAP can be conceived as having three steps:

1. Identify which students should be offered deferred admission through NCGAP.
2. Provide instruction and support to NCGAP students while at community colleges.
3. Ensure smooth transition to UNC institution.

A. Step 1: Identify Students to Participate in NCGAP

Potential NCGAP participants should be identified in their junior year of high school (NC Works Career Coaches, if available, can be engaged). The timing of full implementation noted in the legislation would not allow such outreach to junior students. These students should also be assessed through provisions of the Career and College Ready program to identify any needed remediation prior to graduation from high school. Anticipating components of this program will include academic content as well as academic success skills, with potential modularized delivery, NCGAP participants will be directed to engage in all opportunities afforded them.

In addition to trying to address academic deficiencies while in high school, high school counselors are pressed to understand the goals and procedures of NCGAP in order to properly advise students on their college options. Two strategies could be employed to identify which students would specifically be offered deferred admission to a specific UNC institution through NCGAP.

Option 1: Raise again the UNC system-wide minimum admission requirements.

Under this option, UNC's system-wide minimum high school GPA standards would be set above the current minimum once again. All students falling between the old and new minimums will be directed to participate in NCGAP.

Implementation Details

This option would raise the minimum admission requirement for the University above the Board's new thresholds that just went into full-effect in the fall of 2013 (only two years ago) but have not had enough time to bear results.²⁴ One approach to NCGAP would be to further increase those thresholds. Research demonstrates the ineffectiveness of using admissions tests to predict undergraduate student outcomes, therefore the most efficient and effective adjustment in admissions requirements would be to increase the high school GPA requirement. Many factors contribute to a student graduating within six-years, including family income, student motivation, prior coursework, etc. Given these complexities, it is difficult to use a single metric,

²⁴ The current UNC minimum high school GPA is a weighted 2.5 and 800 SAT/17 ACT.

like high school GPA, to predict success. With that in mind, however, we conducted a statistical analysis (logistic regression) to predict six-year graduation rates by high school GPA. Analysis indicates that at a weighted 2.6 high school GPA, all students who have over a 50% chance of graduating are admitted.²⁵ NCCCS uses an *unweighted* GPA of 2.6 to place students in remediation. To account for the weighting differences, our analysis uses a weighted 2.7 GPA threshold for this policy option. If a 2.7 GPA policy had been in effect in the Fall of 2014, UNC system-wide enrollment for new first-time freshman would have declined by 2%, or 595 undergraduate students which include 104 out-of-state students and 491 in-state students (Appendix I).

Key Considerations

This seemingly straight-forward approach to implement NCGAP would have a **disproportionately negative impact on rural, low-income, and minority students and would jeopardize the future of some of the predominantly minority-serving UNC constituent institutions (HBCUs)**. Of the nearly 500 in-state students with high school GPAs between 2.5-2.7 who enrolled in UNC institutions in Fall 2014:

- 9% are military affiliated;²⁶
- 31% are from rural counties;²⁷
- 71% are from low-income families;²⁸
- 83% are non-white (Black/African American - 69%, Hispanic - 4%, American Indian/Alaskan - 2%, and other - 8%); and
- 86% enroll at UNC's HBCUs and UNCP, a minority serving institution.

NCGAP could increase the stratification between low-income and higher-income students represented in the four-year public sector. Nationally, lower-income students, who come from families with incomes less than \$29,600, are overrepresented in the for-profit and two-year public sectors, but underrepresented in four-year public and private nonprofit institutions. The reverse is true for higher-income students, who come from families with incomes above \$106,360.²⁹

²⁵ From UNC-GA's data files: "NCGAP\do file\50% chance of graduating"

²⁶ Students who receive various Department of Defense and Veteran Affairs benefits. Percentage is for Fall 2015 cohort and not the Fall 2014 cohort.

²⁷ Rural counties definition come from "The Rural Center" at <http://ncruralcenter.org/rural-data-bank>. "Rural: Each has an average population density of 250 per square mile or less, according to 2014 U.S. Census population estimates." NC population in 2010 census was 9,535,483 and 4,723,090 (49.5%) were rural.

²⁸ 17.5% of North Carolinians live in poverty compared to 15.4% of all Americans, according to the U.S. Census at (<http://quickfacts.census.gov/qfd/states/37000.html>)

²⁹ Baum, S., Ma, J. & Payea, K. (2013) "Education Pays. The benefits of higher education for individuals and society: Trends in higher education series (College Board)

NCGAP disproportionately affects low-income families and could further exacerbate the degree attainment gap between higher-income and lower-income families. Studies show that students from higher-income families and students whose parents have four-year college degrees are more likely than others to earn bachelor's degrees within six years.³⁰ In 2013, 77% of adults from families in the top income quartile earned at least a bachelor degree by the time they turned 24, up from 40% in 1970, but only 9% of people from the lowest income bracket earned the same, up from 6% in 1970.³¹

The effect of this policy on communities of color is significant. UNC struggles to achieve representation for minority groups at its constituent institutions. For Black/African Americans, those most impacted by this policy, currently 21.5% of UNC's undergraduate student population are Black/African American compared to 24.4% of the entire state population ages 18-24. This policy will further reduce Black/African American representation within the system, as well as representation for Hispanics and Native Americans. Given the current and projected demographic changes for the state, these disparate impacts will only grow.

If the impacts of NCGAP mirror the differences in 6-year baccalaureate attainment rates predicted by the 2009 cohort analysis, this implementation strategy could unintentionally increase the current attainment gap between white and non-white degree recipients as well as low-income and high-income degree recipients.

Students in this GPA range are clustered at UNC's HBCUs and minority serving institution. **The effect of this policy could have detrimental effects on the viability of some of these institutions,** as percentage reductions to new freshman enrollments would be in the double digits. See Appendix I for details.

Option 2: Reduce acceptance rates at each of the 16 UNC constituent institutions.

Under this option, each UNC institution defers the lowest 2.5% of its admitted class.

Implementation Details

This option requires each institution to identify the lowest 2.5% of its admitted class and direct them into an NCGAP path. Given both time and data limitations, the analysis presented here defines the lowest 2.5% as the students admitted with the lowest 2.5% of high school GPAs of the admitted class (in practice, admission officers use factors outside of just GPA to determine admission). The 2.5% threshold was

³⁰ Cahalan, M., & Perna, L. W. (2015). Indicators of higher education equity in the United States: 45-year trend report. Washington, DC: The Pell Institute and Penn AHEAD.

³¹ Ibid.

chosen because it impacts roughly the same number of enrolled students as the first option. Initial analysis of the Fall 2014 admitted class indicates that this approach would affect 1,970 admitted students.

- Of those 1,970, 772 are out-of-state students.³² We can reasonably assume out-of-state students would decline participation in NCGAP given the lack of housing options available at community colleges.
- Of the 1,198 in-state students, 89%, or 1,065, would be admissible to at least one other UNC institution. We can reasonably assume, given the stated preference for a four-year institution, that the majority of these students would decline participation in NCGAP and simply enroll at another UNC institution or an out-of-state or private four-year institution.
- There are 133 in-state students who would not be admissible at any UNC institution (i.e., fall within the lowest 2.5% of the admitted class at each institution).
- In Fall 2014 only 76 of the 133 inadmissible students enrolled at a UNC institution, of which 89% enrolled at a HBCU or minority serving institution.

Key Considerations

This approach would likely have the effect of simply redistributing resources among the UNC constituent campuses. It could however, unintentionally, create “brain drain”. “Brain drain” results if students deferred chose to leave the state rather than attend another UNC institution. For the cohort under study, our most selective institution, the University of North Carolina at Chapel Hill, which has an 89% graduation rate, approximately 200 North Carolinian students who were deemed qualified and admitted to North Carolina’s flagship university would be deferred to a community college. At NC State, the number of families affected is estimated at over 250.

As this analysis demonstrates, in an environment where families have multiple four-year post-secondary choices, one could predict that few students might agree to opt-in to a deferred admission program. Indeed only 76 currently enrolled students would be inadmissible within the UNC system.

Though the number is small, these students are clustered at UNC’s minority-serving institutions. Eighty-one percent (81%) of these students are non-white and 29% are from rural counties. Should the public four-year option be removed, students may opt to enroll in more expensive private, not-for-profit, for-profit or out-of-state institutions.

³² For this student group, 30% of admitted out-of-state students actually enrolled.

B. Step 2: Serving NCGAP Participants in Community Colleges

Upon provisional acceptance to a UNC institution, students must commit to attending that specific UNC institution upon admission to the local community college as an NCGAP participant. Though this will be difficult to enforce, since we could not prevent students and families from altering their choices, particularly if those choices were a result of a move for a new job, a family or health crisis, or military deployment, it will be important to attempt enforcement since in order to try to meet the goals of this provision, student success initiatives must be appropriately and successfully targeted.

NCGAP participants must enroll in a community college the fall immediately following their graduation from high school. They will be assigned a success coach. All NCGAP participants at a given community college will be assigned to the same success coach and supported as a cohort beginning each fall. NCGAP participants will be concurrently identified as a cohort member of the NCGAP participants of the UNC institution to which they have been provisionally accepted.

The community college success coach will work with NCGAP participants, admissions counselors, and assigned academic advisors to form a network of intentional and engaged support targeting timely completion of the academic credential, which will include specific benchmarks established through a jointly agreed upon individualized academic plan. If needed, the individualized plan will include structured engagement in student learning supports (supplemental instruction, co-requisite coursework, tutoring, academic labs).

General expectations of all NCGAP students might include:

- Active participation in the community college's orientation/first year experience.
- Enrollment in ACA 122 during the participant's second full semester, if not designed as part of the first year experience at the college. The ACA 122 will allow for the student to target his/her senior institution investigations to the one to which he/she is already provisionally accepted.
- Meet with community college cohort a minimum of two times each traditional semester.
- Unofficial declaration of major by the completion of 30 semester credit hours. This will allow the advisor and success coach to tailor the last 30 semester credit hours of the associate degree based upon the baccalaureate plan at the senior institution.
- Official declaration of major at a semester hour completion comparable to the native student at the selected senior institution.
- NCGAP students will be encouraged to participate in any UNC institution specific NCGAP programming available.

General expectations of all participating community colleges might include:

- Provide an NCGAP success coach who adheres to current best practice in actively engaging NCGAP student participants.
- Ensure NCGAP success coach is appropriately credentialed and trained to serve students (including ongoing professional development).
- Provide an academic advisor who adheres to current best practice in actively engaging NCGAP student participants.
- Ensure academic advisor is appropriately credentialed and trained to serve the students (including ongoing professional development).
- Provide targeted orientation/first year experience.
- Engage with potential NCGAP students during their senior year of high school.
- Ensure that structures and scheduling allow for NCGAP cohort activities.

The North Carolina Community College System will have primary responsibility for implementation of the above and tracking progress.

Early Alerts use would facilitate early and often intervention by the network of support as needed by each individual student. In addition, the potential use of predictive analytics might allow colleges to better design targeted supports and interventions for each student participant. This is an area for further investigation and investment. Both NCCCS and UNC have some institutions already using predictive analytics solutions and are planning to roll in several institutions this coming year.

A strong imperative is that student academic progress be monitored by both institutions for engagement and planning purposes. To that end, state investment in the creation and maintenance of advising technology that allows sharing of academic progress among the partnering institutions should be considered.

C. Step 3: NCGAP Students Transfer to Universities

Similar to the CAA and the institution specific guaranteed admission programs already in place, upon completion of the associate degree, while a four year institution saves a seat, the NCGAP student should ‘apply’ to the UNC institution and is guaranteed admission provided any additional individual constituent institution requirements are met (e.g., community college GPA minimums, etc.).

V. Fiscal Impact of NCGAP Implementation

Finally, the NCGAP provision requires that the report include the fiscal impact NCGAP may have with regard to enrollment at UNC constituent institutions and at community colleges, the number of students who may participate in NCGAP, and its effect on FTEs.

1. **Enrollment:** Under the first option, NCGAP will disparately impact rural, low-income, and minority students. Because of this disparate impact, students affected by NCGAP will be clustered at UNC's historically black colleges and universities (HBCUs). Therefore, **NCGAP could have detrimental effects on the economic viability of some of these institutions**, as percentage reductions to new freshman enrollments would be in the double digits.

Raising the high school GPA admissions cut-offs from 2.5 to 2.7, approximately 500 in-state students would be impacted, with an **estimated cost avoidance to the state of roughly \$3.5 million.**³³ **Depending on the participation rate, these savings would be offset by the enrollment cost growth at NCCCS, which ranges between \$584,000 and \$730,000.**³⁴

Furthermore, UNC institutions' budgets would be impacted not just through the loss of state appropriations and tuition but by a reduction in fees and other auxiliary income (housing, dining, etc.). Some of these fees cover fixed costs associated with paying down debt; with fewer students to spread the fixed cost over, remaining students could see their fees increase.

The second option is likely to have the effect of simply redistributing resources among the UNC constituent campuses since students will still have multiple UNC options available to them, for those that are found to be inadmissible to a UNC institution, they are largely non-white and attend HBCUs.

2. **Participation Rate: The participation rate is likely to be low to moderate regardless of implementation strategy.** Using UNC admissions data, we find that of the UNC rejected Fall 2014 applicants within a GPA range of 2.5 to 2.7, 39.4% enrolled at a North Carolina community college.³⁵ UNC-Chapel Hill's C-STEP admission program, which targets low- to moderate-income high school students, has a 44% participation rate over the past three years for the 62 unsuccessful first-year candidates that were offered the program.³⁶ Given these data points, program participation rates are likely to be moderate.

³³ UNC-GA & NCCCS Finance: Calculation 491 students * \$7,222 (UNC 2015-16 Appropriations per FTE)

³⁴ UNC-GA & NCCCS Finance: Calculation 216 students (44% participation rate) * \$2,703 (NCCCS 2015-16 Appropriation per FTE); 270 students (55% participation rate) * \$2,703 (NCCCS 2015-16 Appropriation per FTE)

³⁵ From UNC-GA's data files: "NCGAP_Fall14_rejected_apps.sas_1.27.16"

³⁶ UNC Admissions 12.22.15

This is not surprising given students have alternate four-year degree options, i.e., other public universities and private and for-profit schools and colleges.

VI. Alternative Idea: Another way to accomplish goals

As implementation of NCGAP was considered, an alternative approach to accomplishing the goals set forth in legislation was identified:

Monitor progress of current student success strategies. As previously discussed, several measures to increase the success of community college and UNC students have been implemented in the last 2 years:

- 2012-2014 – Redesigned and implemented new developmental education courses in community colleges to allow students to complete coursework more quickly.
- 2013 – UNC increased minimum high school GPA requirement for admission.
- 2013 – Began implementation of Reverse Transfer program.
- 2013 – 2016 - New placement methodology for community college students implemented.
- Spring 2014 – Implemented redesigned CAA along with revised ACA 122.

Giving these student success initiatives (and others at individual institutions) time to influence students and then researching the specific influences on transfer rates and time-to-degree will help us better understand and identify gaps that may still exist and how to implement additional strategies to help more North Carolinians earn baccalaureate degrees. Because of the timing of these initiatives, postponing NCGAP at least through 2018 seems prudent.

Improve effective communication of education opportunities and their respective values at the secondary level.

- Monitor impact and success of NC Works Career Coach program and potential for expansion.
- Investigate possible programming that provides incentives for students who choose the associate degree transfer pathway for baccalaureate completion.

VII. Conclusion

Section 11.7 of Session Law 2015-241 directed the Board of Governors of The University of North Carolina (UNC) and the State Board of Community Colleges to report their findings on the impact of a North Carolina Guaranteed Admissions Program (NCGAP). The statute directing this study states that NCGAP seeks to achieve a more efficient and effective pathway to a bachelor's degree, particularly for college-bound students who meet UNC minimum admission requirements but are on the lower end of high school performance.

As required by the provision, The University of North Carolina General Administration (UNC-GA) and the North Carolina Community College System (NCCCS) explored approaches to meeting the goals expressed in the NCGAP provision. The analyses included investigating the following two implementation options that most closely meet the language in the NCGAP provision.

1. System-wide implementation of NCGAP – Raise the UNC system-wide minimum high school grade point average (GPA) admission requirement.
2. Campus-specific implementation of NCGAP – Reduce acceptance rates at each of the 16 UNC constituent institutions.

Based on the analysis of the 2009 cohort as well as information from the UNC Fall 2014 admitted class, the findings suggest the following:

- NCGAP will probably not increase the number of baccalaureate degrees obtained or reduce time to completion but rather could have the opposite effect, fewer baccalaureate degrees.
- Likely lower the cost of college education to the student and the state.
- Likely decrease debt resulting from student loans.
- Provide a credential for those students who complete the associate's.
- Likely have an adverse effect on the state economy if, as the analysis suggests, fewer North Carolinians receive bachelor's degrees that, on average, have higher wages and higher employment rates.
- Increase costs associated with program management and advising at both systems.
- Disparately impact rural, low-income; and minority students and families and/or increase "brain drain".

One of the limitations of this study is that the outcome, six-year graduation rate, requires that we look back in time to evaluate results. Again, research strongly supports that multiple factors influence degree completion, and these factors can be grouped into categories such as: student characteristics (e.g., academic performance, work, socioeconomic status), external factors (e.g., high school preparation, external responsibilities such as family, number of other institutions

attended), institutional factors (e.g., financial aid, integration into academic and co-curricular programs, advising), and shared external-institutional factors (e.g., on-campus employment, early completion core math). These all apply not just to four year universities like UNC but to community college student success as well. Even with the best available student dataset constructed here to examine possible impacts, only the use of a prospective random assignment (which is neither ethical or feasible) of students to a community college or UNC institution can give causal estimates of starting at one or the other.

Many interventions and policy changes have been made at both the NCCCS and UNC since 2009 and it is not possible to reflect them in this study. Though we believe that these interventions will have a positive effect, we simply cannot be sure to what extent they will improve outcomes. Certainly there are some potential negative and unintended consequences for entering students. The General Assembly rightly suggested that an evaluation of NCGAP be done prior to implementation, even with the limitations outlined above, and the results do not paint a clear picture as to whether this program can meet all of the goals outlined by the provision. Both the UNC and NCCCS hope that that the General Assembly considers the alternate idea expressed in this study, which is to allow time for both systems' recent reforms to be both realized and investigated for effectiveness. We all care deeply for the citizens of this great state, we share the heavy responsibility to be good stewards of our collective resources, and we know, that only by working together and making data informed decisions, will we be successful in delivering the talent that our economy needs.

Appendix A: NCGAP Provision

NC GUARANTEED ADMISSION PROGRAM (NCGAP)

25 SECTION 11.7.(a) The General Assembly finds that the six-year graduation rate
26 for students pursuing a baccalaureate degree from any constituent institution of The University
27 of North Carolina is too low. The General Assembly further finds that it is important to design
28 and implement a program for the purpose of achieving the following goals: to assist more
29 students to obtain a baccalaureate degree within a shorter time period; to provide students with
30 a college education at significantly lower costs for both the student and the State; to help
31 decrease the amount of debt resulting from loans that a student may owe upon graduation; to
32 provide a student with an interim degree that may increase a student's job opportunities if the
33 students chooses not to continue postsecondary education; and to provide easier access to
34 academic counseling that will assist a student in selecting coursework that reflects the student's
35 educational and career goals and helps the student succeed academically.

36 SECTION 11.7.(b) The Board of Governors of The University of North Carolina
37 and the State Board of Community Colleges shall jointly study and evaluate how a deferred
38 admission program, to be known as the North Carolina Guaranteed Admission Program
39 (NCGAP), for students identified as academically at risk and designed pursuant to subsection
40 (c) of this section, would address the issues and help achieve the goals set out in subsection (a)
41 of this section. In its study the Board of Governors and State Board of Community Colleges
42 shall also consider the best procedure for implementing NCGAP and the fiscal impact it may
43 have with respect to enrollment.

44 SECTION 11.7.(c) NCGAP shall be a deferred admission program that requires a
45 student who satisfies the admission criteria of a constituent institution, but whose academic
46 credentials are not as competitive as other students admitted to the institution, to enroll in a
47 community college in this State and earn an associate degree prior to enrolling as a student at
48 the constituent institution. A student who earns an associate degree from a community college
49 in this State within three years from the date of the deferred acceptance is guaranteed admission
50 at that constituent institution to complete the requirements for a baccalaureate degree. A
51 constituent institutions shall hold in reserve an enrollment slot in the appropriate future
52 academic years for any student who accepts a deferred admission. A constituent institution shall
53 also reduce its enrollment for each academic year by the number of deferred admissions
54 granted for that academic year.

55 SECTION 11.7.(d) The Board of Governors of The University of North Carolina
56 and the State Board of Community Colleges shall report their finding and recommendations to
57 the Joint Legislative Education Oversight Committee, the Fiscal Research Division, and the
58 Office of State Budget and Management by March 1, 2016. The report shall include an analysis
59 of the fiscal impact NCGAP may have with regard to enrollment at constituent institutions of
1 The University of North Carolina and at community colleges, the number of students who may
2 participate in NCGAP, and its effect on FTEs.

3 SECTION 11.7.(e) Based on the analysis conducted by the Board of Governors
4 and the State Board of Community Colleges pursuant to subsection (b) of this section and the
5 recommendations made pursuant to subsection (d) of this section, each constituent institution
6 shall design a deferred admission program as part of NCGAP for implementation at the
7 institutions. The institution shall design the program so that it may be implemented at the
8 institutions beginning with the 2016-2017 fiscal year and applied to the institution's admission
9 process for the 2017-2018 academic year and each subsequent academic year.

10 SECTION 11.7.(f) The State Board of Community Colleges, in consultation with
11 the Board of Governors of The University of North Carolina, shall adopt rules to ensure that a
12 students participating in NCGAP is provided counseling and assistance in selecting coursework

13 that reflects the student's educational and career goals and that provides a smooth transition
14 from the community college to the constituent institution.

15 SECTION 11.7.(g) NCGAP shall be implemented at all constituent institutions and
16 all community colleges beginning with the 2016-2017 fiscal year and shall apply to admissions
17 policies at each constituent institution and community college beginning with the 2017-2018
18 academic year and each subsequent academic year.

19 SECTION 11.7.(h) This section does not apply to the North Carolina School of
20 Science and Mathematics.

<http://www.ncleg.net/Sessions/2015/budget/2015/H97-PCCS30420-LRxfr-6.pdf> p. 114

Appendix B: North Carolina Comprehensive Articulation Agreement

**2014 COMPREHENSIVE ARTICULATION AGREEMENT
BETWEEN
THE UNIVERSITY OF NORTH CAROLINA
AND
THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM**

**Approved by the Board of Governors of The University of North Carolina and
the State Board of The North Carolina Community College System**

February 21, 2014

**COMPREHENSIVE ARTICULATION AGREEMENT (CAA)
BETWEEN THE UNIVERSITY OF NORTH CAROLINA
AND THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM**

TABLE OF CONTENTS

Legislative Overview	4
Review and Revision of the Comprehensive Articulation Agreement (2013)	4
Assumptions and Intent	5
Policies	5
Regulations	7

Appendices

A. Legislation	12
B. Purpose and History	15
C. Transfer Advisory Committee Procedures	17
D. Transfer Advisory Committee	20
E. CAA Transfer Credit Appeal Procedure	22
F. Associate in Arts and Associate in Science Curriculum Standards	24
G. Transfer Course List	28

I. Legislative Overview

The Comprehensive Articulation Agreement fulfills the provisions of House Bill 739, Senate Bill 1161 (1995 Session of the General Assembly), and House Bill 903. The original legislation is provided in Appendix A. Section 1 of HB 739 instructed the Board of Governors of The University of North Carolina and the State Board of Community Colleges to develop a plan for the transfer of credits between the institutions of the North Carolina Community College System, and between them and the constituent institutions of The University of North Carolina. Section 3 of HB 739 instructed the State Board of Community Colleges to implement common course descriptions for all community college programs by June 1, 1997. Section 1 of SB 1161 directed The University of North Carolina Board of Governors and the State Board of Community Colleges to develop a plan that ensures accurate and accessible academic counseling for students considering transfer between community colleges, and between community colleges and the constituent institutions of The University of North Carolina. Section 2 of SB 1161 required the two Boards to establish a timetable for the development of guidelines and transfer agreements for program majors, professional specialization, and associate in applied science degrees. Section 3 of SB 1161 directed the Board of Governors of The University of North Carolina and the State Board of Community Colleges to review their policies and rules and make any changes that are necessary to implement the plan for the transfer of credits.

In 2013, S.L. 2013-72 (HB 903) further emphasized the importance of the Comprehensive Articulation Agreement (CAA) by mandating compliance with its terms and requiring biannual joint reviews to assure full institutional adherence to the agreement. The bill requires that a report, summarizing the results of these reviews, including any instances of non-compliance or revision to the agreement be submitted to the Joint Legislative Oversight Committee on November 1 of each year.

II. Review and Revision of the Comprehensive Articulation Agreement (2013)

Since the Comprehensive Articulation Agreement was established in 1997, there have been nearly two decades of student and faculty experience with the CAA, and considerable changes in lower-level general education requirements, and major program requirements of our North Carolina public senior institutions. Additionally, executive and legislative agencies with the state have endorsed greater participation in college level work by qualified secondary students.

After the review of the CAA within the context of these changes, this revision of CAA policies and curricula is designed to better facilitate the original purpose of the CAA to optimize the transfer of credits between the institutions of the North Carolina Community College System and the University of North Carolina institutions. The focus of the current review of the CAA includes the following:

1. Supporting current general education requirements at senior institutions.
2. Establishing a process for maintaining currency.
3. Ensuring current information is universally accessible to students and advisors at both senior institutions and community colleges.

The revised Comprehensive Articulation Agreement serves as a current and adaptive agreement that supports more students completing both the associates and baccalaureate degrees.

III. Assumptions and Intent

The Comprehensive Articulation Agreement between The University of North Carolina and the North Carolina Community College System rests upon several assumptions common to successful statewide comprehensive articulation agreements. The primary assumption is that institutions recognize the professional integrity of other public post-secondary institutions that are regionally accredited for college transfer programs. All courses designated as approved for college transfer under this agreement will be taught by faculty who meet Southern Association of Colleges and Schools (SACS) Commission on Colleges credential requirements. Another assumption is that substantial commonality exists in the lower-division general education requirements and courses currently offered at all universities and community colleges for the purpose of transfer.

The general education courses and pre-major courses offered at the institutions that comprise The University of North Carolina and the North Carolina Community College System are similar in intended outcomes and competencies, and so, transferable between institutions. The general education requirements of the receiving institutions remain in effect for all students not participating in this comprehensive articulation agreement; any upper-division general education requirements and graduation requirements remain unaffected by this agreement. Institution-wide, lower-division general education requirements serve as the starting point for determining specific general education courses in each baccalaureate major. The specific lower-level courses required for each major are the subject of the pre-majors developed by joint discipline committees. The purpose and history are provided in Appendix B.

IV. Policies

The Comprehensive Articulation Agreement (CAA) applies to all fifty-eight North Carolina community colleges and all sixteen constituent institutions of The University of North Carolina. The CAA is applicable to all North Carolina community college students who successfully complete a course designated as transferable or graduate with an A.A. or A.S. degree and transfer to a constituent institution of The University of North Carolina. The regulations for implementation of the CAA were originally approved by the Board of Governors and the State Board of Community Colleges. The Transfer Advisory Committee (TAC) oversees refinements of the regulations and minor changes. Significant changes will be brought to the Board of Governors and the State Board of Community Colleges for review at the discretion of the respective Presidents of The University of North Carolina and the North Carolina Community College System. The TAC Procedures are provided in Appendix C.

Since the CAA was first established, the state of North Carolina has encouraged high school students to maximize their time by taking college coursework under various initiatives. The CAA policies extend to high school students taking college coursework through the North Carolina Community College System and/or the constituent universities of the University of North Carolina.

A. Transfer Advisory Committee (TAC)

Authority to interpret the CAA policy rests with the TAC. The TAC is an eight-member committee appointed by the Presidents of the North Carolina Community College System and The University of North Carolina. Questions concerning the CAA policy interpretations should be directed to the appropriate system's chief academic officer with an explanation of the institutional policy that may (appear to) be in conflict with CAA policy. The chief academic officer will forward unresolved questions to the TAC for interpretation. Each system will appoint one ex-officio nonvoting member of the TAC. Each system will appoint one staff member to support the work of the TAC.

Questions about the transferability of the course work under the CAA or any proposed changes to the policies, general education courses, or pre-majors must be addressed by the TAC. Changes to the curriculum standards for the Associate in Arts and Associate in Science degree programs are the authority of the State Board of Community Colleges. The TAC will be notified of any changes.

B. Transfer Assured Admissions Policy (TAAP)

The TAAP assures admission to one of the 16 UNC institutions under the following conditions:

- Admission is not assured to a specific campus or specific program or major.
- Students must have graduated from a North Carolina community college with an Associate in Arts or Associate in Science degree.
- Students must meet all requirements of the CAA.
- Students must have an overall GPA of at least 2.0 on a 4.0 scale, as calculated by the college from which they graduated, and a grade of "C" or better in all CAA courses.
- Students must be academically eligible for re-admission to the last institution attended.
- Students must meet judicial requirements of the institution to which they apply.
- Students must meet all application requirements at the receiving institution, including the submission of all required documentation by stated deadlines.

If a student is denied admission to a UNC institution, then he or she will be notified in writing by the institution. In this notification, the student will be directed to the College Foundation of North Carolina (CFNC) website (www.cfnc.org) where the student will be given information regarding space availability and contacts in the respective UNC Admissions offices. It is the student's responsibility to contact each institution's admissions office to get specific information about admissions and available majors.

If the previous steps do not result in admission to a UNC institution, then the student should contact the CFNC Resource Center at 1-866-866-CFNC.

C. Transfer Credit Appeal

If a transfer student perceives that the terms of the CAA have not been honored, he or she may follow the Transfer Credit Appeal Procedure as outlined in Appendix E. Each UNC and community college institution will provide a link to the Transfer Credit Appeal Procedure on its website.

V. Regulations

A. Transfer of Credits

The CAA establishes the procedures governing the transfer of credits for students who transfer from a North Carolina Community College to a constituent institution of The University of North Carolina. The CAA does not address admission to a specific institution or to a specific major within an institution.

1. Eligibility

To be eligible for the transfer of credits under the CAA, the student must graduate from the community college with an Associate in Arts (AA) or Associate in Science (AS) degree and have an overall Grade Point Average (GPA) of at least 2.0 on a 4.0 scale and a grade of "C" or better in all CAA courses. Students who do not complete the degree are eligible to transfer credits on a course-by course basis.

2. Definition of General Education Courses and Pre-major Courses

The Associate in Arts (AA) and Associate in Science (AS) degree programs in the North Carolina Community College System require a total of sixty or sixty-one semester hours credit for graduation (see Appendix F) and are transferable to any UNC institution. The overall total is comprised of both lower-division general education and pre-major courses. This curriculum reflects the distribution of discipline areas commonly included in institution-wide, lower-division general education requirements for the baccalaureate degree.

The Associate in Arts (AA) and Associate in Science (AS) degree programs include general education requirements that represent the fundamental foundation for success and include study in the areas of English composition, communications, humanities and fine arts, natural sciences and mathematics, and social and behavioral sciences. Within these discipline areas, community colleges must include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic computer use. Students must meet the receiving university's foreign language and/or health and physical education requirements, if applicable, prior to or after transfer to the senior institution.

The AA and AS degree programs of study are structured to include two components:

–**Universal General Education Transfer Component** comprises a minimum of 30 semester hours of credit, and

–**Additional general education, pre-major, and elective courses** that prepare students for successful transfer into selected majors at UNC institutions and bring the total number of hours in the degree programs to 60-61 semester hours.

To ensure maximum transferability of credits, students should select a transfer major and preferred transfer university before completing 30 semester hours of credit. Additional general education, pre-major, and elective courses should be selected based on a student's intended major and transfer institution.

Each receiving institution will identify community college course equivalencies and publicize an equivalency course crosswalk to ensure transfer of credit uniformity and transparency.

The specific number and distribution of courses used to fulfill the requirement in each of these areas will be identified by each community college as meeting its own general education requirements. The Universal General Education Transfer Component and Other Required General Education courses will be drawn from those courses designated in the North Carolina Community College Combined Course Library as being transferable general education. This will preserve the autonomy of each community college to develop its own general education program, including those aspects that make its program unique. Students are directed to the pre-majors for specifics regarding courses and distribution.

3. **Transfer of Associate in Arts and Associate in Science degree programs**

- a. The CAA enables North Carolina community college graduates of two-year Associate in Arts (AA) and Associate in Science (AS) degree programs who are admitted to constituent institutions of The University of North Carolina to transfer with junior status.
- b. Universities cannot place requirements on students transferring under the CAA that are not required of their native students.
- c. A student who completes the Associate in Arts or Associate in Science degree prior to transfer to a UNC institution will have fulfilled the UNC institution's lower-division general education requirements.
- d. Due to degree requirements in some majors, additional courses at the UNC institution may be required beyond the general education courses and pre-major courses taken at the community college.
- e. Community college graduates of the Associate in Arts or Associate in Science degree programs who have earned 60 semester hours in approved transfer courses with a grade of "C" or better and an overall GPA of at least 2.0 on a 4.0 scale will receive at least 60 semester hours of academic credit upon admission to a UNC institution.
- f. Requirements for admission to some major programs may require additional pre-specialty courses beyond the pre-major taken at the community college. Students

entering such programs may need more than two academic years of course work to complete the baccalaureate degree, depending on requirements of the program.

- g. All courses approved for transfer in the CAA are designated as fulfilling general education or pre-major/elective requirements (see Appendix G). While general education and pre-major courses may also be used as electives, elective courses may not be used to fulfill general education requirements.
- h. CAA courses taken beyond the 60-61 SHC of credit in which the student received less than a "C" will not negate the provisions of the CAA.

4. UNC Minimum Admission Requirements (MAR) and Minimum Course Requirements (MCR)

- a. A student who completes the Associate in Arts or the Associate in Science degree will satisfy UNC's minimum admission requirements (MAR) and minimum course requirements (MCR).
- b. A transfer student will also be considered to have satisfied (MAR) and (MCR) if he or she has:
 - 1. received the Associate in Arts, the Associate in Science, the baccalaureate, or any higher degree, or
 - 2. completed at least six (6) semester hours in degree-credit in each of the following subjects: English, mathematics, the natural sciences, and social/behavioral sciences, and (for students who graduate from high school in 2003-04 and beyond) a second language.

5. Students not completing the Associate in Arts or Associate in Science degrees

A North Carolina community college student who satisfactorily completes, with a grade of "C" or better, courses identified in the Universal General Education Transfer Component will receive credit applied toward the university's lower-division general education course requirements, subject to the following distribution limit: maximum of 6 hours in English Composition, 9 hours in Humanities/Fine Arts/Communications, 9 hours in Social/Behavioral Sciences, 8 hours in Mathematics, and 8 hours in the Natural Sciences.

A North Carolina community college student who satisfactorily completes a transfer course that is not designated as a Universal General Education Transfer Component course will receive transfer credit for the course. The receiving institution will determine whether the course will count as general education, pre-major, or elective credit.

6. Certification of Universal General Education Transfer Component Courses, Associate in Arts Degree, or Associate in Science Degree Completion

Certification of completion of the Associate in Arts or Associate in Science degree is the responsibility of the community college at which the courses are successfully completed. Transcript identification of Universal General Education Transfer Component courses is also the responsibility of the community college at which the courses are completed. The transcripts of students who transfer before completing the degree will be evaluated on a course-by-course basis by the receiving university. The transferring student who has not completed the degree must meet the receiving institution's general education requirements.

7. Four-Year Degree Plan for Community College Transfer Students

Beyond the Universal General Education Transfer Component courses, a program of study leading to the associate degree contains courses related to a student's major or program emphasis. Pre-major course tracks prepare students to succeed in their chosen field and provide students with clear pathways to completion. Each UNC institution will develop, publish, and maintain four-year degree plans identifying community college courses that provide pathways leading to associate degree completion, admission into the major, and baccalaureate completion. Students who complete the AA or AS degree and the degree plan tracks published by a UNC institution, and who are accepted into that institution and into that major within four years of initial enrollment at the community college, will continue into that major at the UNC institution with all courses fulfilling lower division general education and other degree requirements.

8. Transfer of courses taken in other associate degree programs

Upon admission to another public two-year institution or to a public university, a community college student who was enrolled in an Associate in Applied Science (AAS) or Associate in Fine Arts (AFA) degree program and who satisfactorily completed the courses with a grade of "C" or better in all courses that are designated for college transfer (see Appendix G, CAA Transfer Course List) will receive credit for those courses. AAS or AFA students completing courses designated Universal General Education Transfer Component will receive equivalent general education course credit for those courses at the receiving institution. For courses not designated as Universal General Education Transfer Component, the receiving institution will determine whether the course will count as general education or pre-major/elective credit. Students in these programs who transfer must meet the general education requirements of the receiving institution.

Articulation of Associate in Fine Arts or Associate in Applied Science degree programs may be handled on a bilateral articulation agreement basis rather than on a state-wide basis. Under bilateral agreements, individual universities and one or more community colleges may join in a collaborative effort to facilitate the transfer of students from AFA or AAS degree programs to baccalaureate degree programs.

The TAC encourages the development of new bi-lateral articulation agreements among institutions; However, TAC will not maintain a current inventory of bilateral articulation agreements for AAS degree programs.

9. Transfer of courses not originated at North Carolina community colleges

Transfer courses that do not originate at a North Carolina community college or UNC institution may be used under the CAA with the following stipulations:

- a. Courses must be completed at a regionally accredited (e.g., SACS) institution of higher education;
- b. Courses must meet general education requirements; and
- c. Courses may total no more than 14 semester hours of general education course credit.
- d. For courses not originating at a NC community college, if the courses are used to complete the AA or AS, the courses will transfer as part of the degree. Otherwise, if 14 hours or less are presented without completion of the AA or AS, then the receiving institution will consider the courses on a course-by-course basis.

10. Transfer of Advanced Placement (AP) course credit

Advanced Placement (AP) course credits, awarded for a score of three or higher, are acceptable as part of a student's successfully completed Associate in Arts or Associate in Science degree under the CAA. Students who receive AP course credit at a community college but do not complete the Associate in Arts or Associate in Science degree will have AP credit awarded on the basis of the receiving institution's AP policy.

B. Impact of the CAA on other articulation agreements

The CAA takes precedence over bilateral articulation agreements established between constituent institutions of the University of North Carolina and the North Carolina Community College System but does not necessarily preclude such agreements. Institution-to-institution articulation agreements that fall within the parameters of the CAA and enhance transferability of students from community colleges to senior institutions are encouraged. Institutional articulation agreements conflicting with the CAA are not permitted.

C. Compliance Procedures

The Transfer Advisory Committee (TAC) is charged with ensuring compliance of institutional policies and practices regarding the CAA. To that end, a TAC Review Team, comprised of one UNC representative and one community college representative, will survey and review the institutional transfer credit policies and procedures of two UNC institutions per quarter. The TAC will report the findings to UNC-General Administration and the North Carolina Community College System Office.

D. Students enrolled prior to Fall Semester 2014

Students officially enrolled in an AA or AS program at a North Carolina community college prior to Fall Semester 2014 are subject to the conditions and protections contained in the CAA in place at the time of their initial enrollment as long as they have remained continuously enrolled.

Appendices
Appendix A
Legislation

HB 739, SB 1161, HB 903

GENERAL ASSEMBLY OF NORTH CAROLINA
1995 SESSION
RATIFIED BILL

CHAPTER 287
HOUSE BILL 739

AN ACT TO SIMPLIFY THE TRANSFER OF CREDIT BETWEEN NORTH CAROLINA INSTITUTIONS OF HIGHER EDUCATION.

Section 1. The Board of Governors of The University of North Carolina and the State Board of Community Colleges shall develop a plan for the transfer of credits between the institutions of the North Carolina Community College System and between the institutions of the North Carolina Community College System and the constituent institutions of The University of North Carolina. The Board of Governors and the State Board of Community Colleges shall make a preliminary report to the Joint Legislative Oversight Committee on Education prior to March 1, 1996. The preliminary report shall include a timetable for the implementation of the plan for the transfer of credits.

Sec. 2. It is the intent of the General Assembly to review the plan developed by the Board of Governors and the State Board of Community Colleges pursuant to Section 1 of this act and to adopt a plan prior to July 1, 1996, for the transfer of credits between the institutions of the North Carolina Community College System and between the institutions of the North Carolina Community College System and the constituent institutions of The University of North Carolina.

Sec. 3. The State Board of Community Colleges shall implement a common course numbering system, to include common course descriptions, for all community college programs by June 1, 1997. A progress report on the development of the common course numbering system shall be made to the Joint Legislative Oversight Committee on Education by March 1, 1996.

Sec. 4. This act is effective upon ratification.

In the General Assembly read three times and ratified this the 19th day of June, 1995.

Dennis A. Wicker
President of the Senate

Harold J. Brubaker
Speaker of the House of Representatives

GENERAL ASSEMBLY OF NORTH CAROLINA
1995 SESSION
RATIFIED BILL

CHAPTER 625
SENATE BILL 1161

AN ACT TO IMPLEMENT THE RECOMMENDATION OF THE JOINT LEGISLATIVE EDUCATION
OVERSIGHT COMMITTEE TO IMPLEMENT AND MONITOR THE PLAN FOR THE TRANSFER OF
CREDITS BETWEEN NORTH CAROLINA INSTITUTIONS OF HIGHER EDUCATION.

Whereas, it is in the public interest that the North Carolina institutions of higher education have a uniform procedure for the transfer of credits from one community college to another community college and from the community colleges to the constituent institutions of The University of North Carolina; and

Whereas, the Board of Governors of The University of North Carolina and the State Board of Community Colleges have developed a plan for the transfer of credits between the North Carolina institutions of higher education; and

Whereas, the General Assembly continues to be interested in the progress being made towards increasing the number of credits that will transfer and improving the quality of academic advising available to students regarding the transfer of credits; Now, therefore,

Section 1. The Board of Governors of The University of North Carolina and the State Board of Community Colleges shall develop a plan to provide students with accurate and understandable information regarding the transfer of credits between community colleges and between community colleges and the constituent institutions of The University of North Carolina. The plan shall include provisions to increase the adequacy and availability of academic counseling for students who are considering a college transfer program. The Board of Governors and the State Board of Community Colleges shall report on the implementation of this plan to the General Assembly and the Joint Legislative Education Oversight Committee by January 15, 1997.

Sec. 2. The Board of Governors and the State Board of Community Colleges shall establish a timetable for the development of guidelines and transfer agreements for program majors, professional specializations, and associate in applied science degrees. The Board of Governors and the State Board of Community Colleges shall submit the timetable and report on its implementation to the General Assembly and the Joint Legislative Education Oversight Committee by January 15, 1997.

Sec. 3. The State Board of Community Colleges shall review its policies and rules and make any changes in them that are necessary to implement the plan for the transfer of credits, including policies and rules regarding the common course numbering system, Combined Course Library, reengineering initiative, and the system wide conversion to a semester-based academic year. The necessary changes shall be made in order to ensure full implementation by September 1, 1997.

Sec. 4. This act is effective upon ratification.

In the General Assembly read three times and ratified this the 21st day of June, 1996.

Dennis A. Wicker
President of the Senate

Harold J. Brubaker
Speaker of the House of Representatives

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2013

SESSION LAW 2013-72
HOUSE BILL 903

AN ACT TO REQUIRE ALL CONSTITUENT INSTITUTIONS OF THE UNIVERSITY OF NORTH CAROLINA TO FULLY ADHERE TO THE COMPREHENSIVE ARTICULATION AGREEMENT WITH THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM REGARDING THE TRANSFER OF COURSES AND ACADEMIC CREDITS BETWEEN THE TWO SYSTEMS AND THE ADMISSION OF TRANSFER STUDENTS AND TO DIRECT THE UNIVERSITY OF NORTH CAROLINA AND THE NORTH CAROLINA COMMUNITY COLLEGE SYSTEM TO REPORT BIANNUALLY REGARDING THE AGREEMENT TO THE JOINT LEGISLATIVE EDUCATION OVERSIGHT COMMITTEE.

The General Assembly of North Carolina enacts:

Section 1. G.S. 116-11 is amended by adding a new subdivision to read:

"(10c) The Board of Governors shall require each constituent institution to adhere fully to the Comprehensive Articulation Agreement between The University of North Carolina and the North Carolina Community College System that addresses the transfer of courses and academic credits between the two systems and the admission of transfer students. The Board of Governors shall further ensure that the agreement is applied consistently among the constituent institutions. The University of North Carolina and the North Carolina Community College System shall conduct biannual joint reviews of the Comprehensive Articulation Agreement to ensure that the agreement is fair, current, and relevant for all students and institutions and shall report their findings to the Joint Legislative Education Oversight Committee, including all revisions to the Comprehensive Articulation Agreement and reports of noncompliance by November 1 of each year. The University of North Carolina and the North Carolina Community College System shall also jointly develop an articulation agreement advising tool for students, parents, and faculty to simplify the course transfer and admissions process."

Section 2. This act is effective when it becomes law.

In the General Assembly read three times and ratified this the 5th day of June, 2013.

Daniel J. Forest
President of the Senate

Thom Tillis
Speaker of the House of Representatives

Pat McCrory
Governor

Appendix B Purpose and History (1997-2014)

I. Purpose

The CAA was developed jointly by faculty and administrators of the North Carolina Community College System and The University of North Carolina based on the proposed transfer plan approved by both governing boards in February 1996.

The provisions of the originating legislation are consistent with the strategic directions adopted by The University of North Carolina Board of Governors, the first of which is to "expand access to higher education for both traditional and non-traditional students through...uniform policies for the transfer of credit from community colleges to constituent institutions...development of electronic information systems on transfer policies, off-campus instruction, and distance education...[and] increased collaboration with other education sectors..." Similarly, the State Board of Community Colleges has established the education continuum as one of seven critical success factors used to measure the performance of programs consistent with the workforce development mission of the North Carolina Community College System. College-level academic courses and programs have been a part of the mission and programming of the North Carolina Community College System from its inception in 1963.

The Board of Governors and the State Board of Community Colleges are committed to further simplifying the transfer of credits for students and thus facilitating their educational progress as they pursue associate or baccalaureate degrees within and among public post-secondary institutions in North Carolina.

II. History

The two Boards approved a "Proposed Plan to Further Simplify and Facilitate Transfer of Credit Between Institutions" at their meetings in February 1996. This plan was submitted as a preliminary report to the Joint Legislative Education Oversight Committee in March 1996. Since that time, significant steps have been taken toward implementation of the transfer plan. At their April 1996 meetings, the Boards appointed their respective sector representatives to the Transfer Advisory Committee to direct, coordinate, and monitor the implementation of the proposed transfer plan. The Transfer Advisory Committee membership is listed in Appendix D.

Basic to the work of the Transfer Advisory Committee in refining transfer policies and implementing the transfer plan has been the re-engineering project accomplished by the North Carolina Community College System, especially common course names, numbers, credits, and descriptions. The Community College Combined Course Library includes approximately 3,800 semester-credit courses written for the associate degree, diploma, and certificate programs offered in the system. Colleges select courses from the Combined Course Library to design all curriculum programs.

Of approximately 700 arts and sciences courses within the Combined Course Library, the faculty and administrators of the community colleges recommended approximately 170 courses as appropriate for the general education transfer core. The Transfer Advisory Committee then convened a meeting on May 28, 1996, at which six University of North Carolina faculty in each of ten general education discipline areas met with six of their professional counterparts from the community colleges. Through

a very useful and collegial dialog, these committees were able to reach consensus on which community college courses in each discipline were acceptable for transfer to University of North Carolina institutions as a part of the general education core. This list of courses was distributed to all University of North Carolina and community college institutions for their review and comments. Considering the recommendations of the general education discipline committees and the comments from the campuses, the Transfer Advisory Committee established the list of courses that constitutes the general education transfer core. This general education core, if completed successfully by a community college student, is portable and transferable as a block across the community college system and to all University of North Carolina institutions.

With the establishment of the general education core as a foundation, joint academic disciplinary committees were appointed to draw up guidelines for community college curricula that will prepare students for intended majors at University of North Carolina institutions. Each committee consisted of representatives from each UNC institution offering such major programs and eight to ten representatives from community colleges. The Transfer Advisory Committee distributed the pre-majors recommended by the faculty committees to all University of North Carolina and community college institutions for their review and comments. Considering the faculty committee recommendations and the campus comments, the Transfer Advisory Committee established pre-majors which have significant numbers of transfers from the community colleges to the University of North Carolina institutions.

The special circumstances surrounding transfer agreements for associate in applied science programs, which are not designed for transfer, require bilateral rather than statewide articulation. Special circumstances include the different accreditation criteria for faculty in transfer and non-transfer programs, the different general education requirements for transfer and non-transfer programs, and the workforce preparedness mission of the technical/community college AAS programs.

A major element in the proposed transfer plan adopted by the two boards in February 1996 is the transfer information system. Simultaneously with the work being done on the general education and professional specialization (major) components of the transfer curriculum, the joint committee on the transfer information system laid out a plan, approved by the Boards of The University of North Carolina and the North Carolina Community College System, "to provide students with accurate and understandable information regarding the transfer of credits...[and] to increase the adequacy and availability of academic counseling for students who are considering a college transfer program." In addition to the printed publications currently being distributed to students, transfer counselors, admissions directors, and others, an electronic information network provides (1) electronic access to the articulation database which will include current transfer policies, guidelines, and on-line catalogs for public post-secondary institutions; (2) computerized common application forms, which can be completed and transmitted electronically along with transcripts and other education records; and (3) an electronic mail network for transfer counselors and prospective transfer students. Access to the e-mail network is available in the transfer counselors' offices and other selected sites on campuses.

The final element of the transfer information system is the Transfer Student Academic Performance Report. This report, recently refined with suggestions from community college administrators, is sent annually to each community college and to the State Board of Community Colleges. These data permit the rational analysis of transfer issues and are beneficial to students and to educational and governmental decision-makers. This performance report provides the important assessment component necessary for evaluating and improving the transfer process.

Appendix C

Transfer Advisory Committee Procedures

Articulation between the North Carolina Community College System and The University of North Carolina is a dynamic process. To ensure the currency of the Comprehensive Articulation Agreement (CAA), occasional modifications to the CAA may be necessary. These modifications may include the addition, deletion, and revision of courses on the transfer list, development and/or revision of pre-majors, and changes in course designation (i.e. additions to UGETC list or changing a course from general education to elective). The TAC will receive requests for modification only upon the recommendation of the chief academic officer of the NCCCS or UNC. Additions, deletions, and modifications may be subject to faculty review under the direction of the TAC. Because the modification process involves faculty and administrative review, this process may require up to 12 months for final action.

Additions to the Universal General Education Transfer Component

Courses currently included on the approved transfer course list may be considered for inclusion as a Universal General Education Transfer Component (UGETC) course through the following procedures:

1. The Chief Academic Officer (CAO) of any subscribing institution submits a written request for a change in course status to the CAO of the respective system. The request should include the rationale for the revised status.
2. The system CAO then submits the request to the Director of Transfer Articulation at UNC General Administration.
3. The Director of Transfer Articulation will send the request to the Chief Academic Officers of the universities. If all the universities approve of the addition, the recommendation will be sent to the TAC and the CAOs of the two systems.
4. If all universities do not approve the request, the Director of Transfer Articulation may assemble a discipline team comprised of university and community college faculty to see if the course can be revised in a manner that will be acceptable for inclusion in the UGETC. If so, the revised course will be sent to the university CAOs for consideration.
5. If all the universities approve of the addition of the revised course, the recommendation will be sent to the TAC and the CAOs of the two systems. If the addition request is not approved by the universities, this will be submitted to the TAC and the CAOs of the two systems for information.
6. After the TAC has taken action on the request, the North Carolina Community College System Office will distribute notification of action taken to the requesting college or to the entire North Carolina Community College System, if applicable. The UNC General Administration will distribute notice of actions as appropriate to its campuses.

Addition of Courses to the Transfer List

Courses in the Combined Course Library that are not on the CAA transfer list may be recommended for inclusion by a participating institution through the following process:

1. For community colleges, the CAO of the college submits a written request for inclusion on the transfer list either as a general education, a pre-major or elective course to the CAO of one of the UNC institutions. If the university will accept the course, and believes it should be recommended for statewide consideration, the CAO will endorse the request, indicating the transfer designation (General Education, Pre-major, or Elective) and forward it to the Director of Transfer Articulation and the CAOs of the two systems.
2. For universities, the CAO of the university will partner with the CAO of a community college and send the request to the Director of Transfer Articulation and the CAOs of the two systems.
3. The NCCCS Office will solicit a response from all community colleges approved to offer the course, and a two-thirds favorable response is required for the change to be pursued. The CAO at UNC may seek input from its respective campuses as he/she deems appropriate.
4. The CAO of either system may submit the request for action to the TAC a minimum of thirty days prior to the next TAC meeting.
5. The TAC reviews the request. Any member of the TAC may request that a course be referred to the Faculty Review Committee. For all courses that are approved, the committee records their action and rationale of action.
6. The NCCCS Office will distribute notification of action taken to the requesting college or to the entire North Carolina Community College System, if applicable. The UNC General Administration will distribute notice of actions as appropriate to its campuses.

Deletion of a Course from the Transfer List

The CAO of any participating community college or university may request that a course be removed from the CAA transfer list by following similar procedures as outlined in items 1-6 in the *Addition of Courses to the Transfer List* above.

The NCCCS Office will review and recommend annually to the TAC courses on the CAA transfer list that are not taught at any community college for at least two years to be considered for removal from the transfer list.

Change in the CAA Designation of a Course

The CAO of any participating community college or university may request a change in the designation of a course in the CAA (i.e.: Elective to General Education or Pre-Major) by sending the request and rationale to the CAOs of the two systems. Either of the system CAOs may submit the request to the TAC for action.

The Faculty Review Process

Any member of the TAC may request that a course under consideration be forwarded to the Faculty Review Committee. The Faculty Review Committee will be asked to review the course and the proposed action.

1. The Faculty Review Committee will consist of the following representatives:
 - a. 3 UNC faculty members
 - b. 3 NCCCS faculty members
2. Appointments to the committee will be for three years but may be renewed.
3. The Faculty Review Committee will receive a request to review a course(s) from the assigned representative(s) of the TAC within one week of the TAC meeting where the request was made.
4. Faculty will be asked to forward their comments, suggestions, and recommendations to one faculty representative from each sector. These three faculty members will then forward a composite report and recommendation to the assigned representative(s) of the TAC prior to the next scheduled TAC meeting.

The assigned representative(s) of the TAC will report the results of the Faculty Review Committee at the next TAC scheduled meeting for action.

Approval of the requested action will require a majority of the TAC members

Appendix D
Transfer Advisory Committee

NCCCS Members

Marcia Conston, Co-chair

Vice President for Enrollment and Student Services **Phone:** 704-330-6647
Central Piedmont Community College **Fax:** 704-330-6225
PO Box 35009
Charlotte, NC 28235
Email: marcia.conston@cpcc.edu

Thomas Gould, Member

Vice President, Academic Affairs **Phone:** 252-493-7406
Pitt Community College **Fax:** 252-321-4333
P.O. Drawer 7007
Greenville, NC 28590
Email: tgould@email.pittcc.edu

Richard E. Swanson, Member

Professor of Physics **Phone:** 910-246-4951
Sandhills Community College **Fax:** 910-246-4113
3395 Airport Road
Pinehurst, NC 28374
Email: swansonr@sandhills.edu

Jami Woods, Member

Vice President-Curriculum Programs **Phone:** 336-386-3266
Surry Community College **Fax:** 336-386-3693
630 South Main Street
Dobson, NC 27017
Email: woodsjsur@surry.edu

UNC Members

Ken Gurganus, Co-chair

Assistant Professor, Math and Statistics **Phone:** 910-962-3297
University of North Carolina-Wilmington **Fax:** 910-962-7107
601 South College Road
Wilmington, NC 28403
Email: gurganus@uncw.edu

Anthony Britt, Member

Associate Director for Administration and Summer School **Phone:** 252-328-9193
East Carolina University **Fax:** 252-328-9345
Office of Continuing Studies
Self-Help Center Mail Stop 514
Greenville, NC 27858-43538
Email: britta@ecu.edu

David English, Member

Vice Provost and Dean of Academic Affairs **Phone:** 336-631-1546
University of North Carolina School of the Arts **Fax:** 336-770-3367
1533 S. Main Street
Winston-Salem, NC 27627
Email: englishd@unca.edu

Lou Ellen Riggans, Member
Director of Transfer
and Academic Student Services
Fayetteville State University
1200 Murchison Road
Fayetteville, NC 28301
Email: lriggans@uncfsu.edu

Phone: 910-672-1603
Fax: 910-672-1026

North Carolina Community College System Representatives

Wesley Beddard, Representative
Associate Vice President
for Student Learning and Success
NC Community College System Office
5016 Mail Service Center
Raleigh, NC 27699-5016
Email: beddardw@nccommunitycolleges.edu

Phone: 919-807-7098
Fax: 919-807-7173

University of North Carolina-General Administration Representatives

Karrie Dixon, Representative
Senior Associate Vice President
for Academic and Student Affairs
UNC-General Administration
910 Raleigh Road, PO Box 2688
Chapel Hill, NC 27514
Email: kdixon@northcarolina.edu

Phone: 919-843-5389
Fax: 919-962-7139

Tenita Philyaw-Rogers, Representative
Director of Transfer Articulation
for Academic and Student Affairs
UNC-General Administration
910 Raleigh Road, PO Box 2688
Chapel Hill, NC 27514
Email: tphilyawrogers@northcarolina.edu

Phone: 919-445-9683
Fax: 919-962-7139

Appendix E
Comprehensive Articulation Agreement Transfer Credit Appeal Procedure
University of North Carolina/North Carolina Community College System

Guiding Principle: If a student from a North Carolina Community College System (NCCCS) college believes the terms of the Comprehensive Articulation Agreement (CAA) have not been honored by a University of North Carolina (UNC) institution to which the student has been admitted, the student may invoke the CAA Transfer Credit Appeal Procedure.

Steps in Filing an Appeal

Step #1:

- **By the last day of classes of the first semester for which admission is offered**, the student must submit a CAA Transfer Credit Appeal Form along with any supporting documentation to the director of admission at the UNC campus to which the student has been admitted. Students first enrolling at the senior institution in a summer session must submit their appeal by the end of the subsequent fall semester.
- **The student must specify on the appeal form the specific CAA language that is in contention. Appeals that lack this information will not be considered.**
- The Director of Admission will review the appeal and respond in writing (email or letter) to the student within 15 business days.

Step #2:

- If the student is not satisfied with the decision of the Director of Admission, he/she may appeal on the same form to the **Chief Academic Officer (Provost)** of the University within 15 days of written notice of the director's decision.
- The Provost will review the appeal and respond in writing (email or letter) to the student within 15 business days of receiving the student's appeal.

Step #3

- If the student is not satisfied with the decision of the Provost, he/she may appeal to the Transfer Advisory Committee (TAC) subcommittee, composed of the Co-chairs, a representative from the UNC General Administration, and a representative from the NCCCS. The student must submit the appeal to the subcommittee within 15 days of the receipt of the Provost's decision. The appeal to the TAC subcommittee should be sent to:

UNC-GA Transfer Advisory Committee Member
CAA Appeal, PO Box 2688, Chapel Hill, NC 27515

If a consensus is reached by the subcommittee, the student will be notified within 15 business days; if a consensus resolution is not reached, the appeal will be forwarded by the subcommittee to the full TAC within 10 business days. The TAC will review the appeal and notify the student of the final decision within 10 business days of receiving the appeal.

Comprehensive Articulation Agreement

Transfer Credit Appeal Procedure

University of North Carolina/North Carolina Community College System

Section 1: Student Information *(to be completed by the student submitting the form)*

- The completed form and any supporting documentation **must be submitted to the UNC institution's Director of Admission by the last day of classes of the first semester for which admission is offered.**
- You must specify the nature of the appeal and cite the specific CAA language that is in contention. Appeals that do not include this information cannot be considered.

Last Name: _____ First: _____ MI: _____
(Please print or type)

Address: _____
(Number and Street) (City) (State) (Zip)

Telephone: _____ Email: _____
(Area code/Number)

Last NC Community College Attended: _____

UNC institution offering admission: _____ beginning (semester/yr) _____

Section 2: Basis for your appeal

- State your concern(s), citing specific language in the CAA that is applicable to your contention. Attach supporting documents.
- The CAA may be found at the North Carolina Community Colleges System website: http://www.nccommunitycolleges.edu/Programs/comprehensive_a_a.htm.

Student Signature: _____ Date: _____

Appendix F

Associate in Arts and Associate in Science Curriculum Standards

Associate in Arts (A10100) Curriculum Standard

The Associate in Arts degree shall be granted for a planned program of study consisting of a minimum of 60 semester hours of credit (SHC) of college transfer courses. Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic computer use.

Courses are approved for transfer through the Comprehensive Articulation Agreement (CAA). The CAA enables North Carolina community college graduates of two-year associate in arts programs who are admitted to constituent institutions of The University of North Carolina to transfer with junior status.

Community college graduates must obtain a grade of "C" or better in each course and an overall GPA of at least 2.0 on a 4.0 scale in order to transfer with a junior status. Courses may also transfer through bilateral agreements between institutions.

GENERAL EDUCATION (45 SHC)

The general education common course pathway includes study in the areas of English composition; humanities and fine arts; social and behavioral sciences; natural sciences and mathematics.

UNIVERSAL GENERAL EDUCATION TRANSFER COMPONENT

(All Universal General Education Transfer Component courses will transfer for equivalency credit.)

English Composition (6 SHC)

The following two English composition courses are required.

ENG 111 Writing & Inquiry (3 SHC)

ENG 112 Writing/Research in the Disciplines (3 SHC)

Select three courses from the following from at least two different disciplines (9 SHC):

Communications

COM 231 Public Speaking (3 SHC)

Humanities/Fine Arts

ART 111 Art Appreciation (3 SHC)

ART 114 Art History Survey I (3 SHC)

ART 115 Art History Survey II (3 SHC)

ENG 231 American Literature I (3 SHC)

ENG 232 American Literature II (3 SHC)

MUS 110 Music Appreciation (3 SHC)

MUS 112 Introduction to Jazz (3 SHC)

PHI 215 Philosophical Issues (3 SHC)

PHI 240 Introduction to Ethics (3 SHC)

Select three courses from the following from at least two different disciplines (9 SHC):

Social/Behavioral Sciences

ECO 251 Principles of Microeconomics (3 SHC)

ECO 252 Principles of Macroeconomics (3 SHC)

HIS 111 World Civilizations I (3 SHC)

HIS 112 World Civilizations II (3 SHC)

HIS 131 American History I (3 SHC)

HIS 132 American History II (3 SHC)

POL 120 American Government (3 SHC)

PSY 150 General Psychology (3 SHC)

SOC 210 Introduction to Sociology (3 SHC)

Math (3-4 SHC)

Select one course from the following:

MAT 143 Quantitative Literacy (3 SHC)

MAT 152 Statistical Methods I (4 SHC)

MAT 171 Pre-calculus Algebra (4 SHC)

Natural Sciences (4 SHC)

Select 4 SHC from the following course(s):

- AST 111 Descriptive Astronomy (3 SHC) and AST 111A Descriptive Astronomy Lab (1SHC)
- AST 151 General Astronomy I (3 SHC) and AST 151A General Astronomy Lab I (1SHC)
- BIO 110 Principles of Biology (4 SHC)
- BIO 111 General Biology I (4 SHC)
- CHM 151 General Chemistry I (4 SHC)
- GEL 111 Introductory Geology (4 SHC)
- PHY 110 Conceptual Physics (3 SHC) and PHY 110A Conceptual Physics Lab (1 SHC)

ADDITIONAL GENERAL EDUCATION HOURS (13-14 SHC)

An additional 13-14 SHC of courses should be selected from courses classified as general education within the Comprehensive Articulation Agreement. Students should select these courses based on their intended major and transfer university.

Total General Education Hours Required: 45

OTHER REQUIRED HOURS (15 SHC)

Academic Transition (1 SHC)

The following course is required:

- ACA 122 College Transfer Success (1 SHC)

An additional 14 SHC of courses should be selected from courses classified as pre-major, elective or general education courses within the Comprehensive Articulation Agreement. Students should select these courses based on their intended major and transfer university.

**One semester hour of credit may be included in a 61 SHC associate in arts program of study. The transfer of this hour is not guaranteed.*

Total Semester Hours Credit (SHC) in Program: 60-61*

Students must meet the receiving university's foreign language and/or health and physical education requirements, if applicable, prior to or after transfer to the senior institution.

Associate in Science (A10400)

Curriculum Standard

The Associate in Science degree shall be granted for a planned program of study consisting of a minimum of 60 semester hours of credit (SHC) of college transfer courses. Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and the basic computer use.

Courses are approved for transfer through the Comprehensive Articulation Agreement (CAA). The CAA enables North Carolina community college graduates of two-year associate in science programs who are admitted to constituent institutions of The University of North Carolina to transfer with junior status.

Community college graduates must obtain a grade of "C" or better in each course and an overall GPA of at least 2.0 on a 4.0 scale in order to transfer with a junior status. Courses may also transfer through bilateral agreements between institutions.

GENERAL EDUCATION (45 SHC) The general education common course pathway includes study in the areas of English composition; humanities and fine arts; social and behavioral sciences; natural sciences and mathematics.
UNIVERSAL GENERAL EDUCATION TRANSFER COMPONENT <i>(All Universal General Education Transfer Component courses will transfer for equivalency credit.)</i>
English Composition (6 SHC) <i>The following two English composition courses are required.</i> ENG 111 Writing & Inquiry (3 SHC) ENG 112 Writing/Research in the Disciplines (3 SHC)
<i>Select two courses from the following from at least two different disciplines (6 SHC)</i> Communications COM 231 Public Speaking (3 SHC) Humanities/Fine Arts ART 111 Art Appreciation (3 SHC) ART 114 Art History Survey I (3 SHC) ART 115 Art History Survey II (3 SHC) ENG 231 American Literature I (3 SHC) ENG 232 American Literature II (3 SHC) MUS 110 Music Appreciation (3 SHC) MUS 112 Introduction to Jazz (3 SHC) PHI 215 Philosophical Issues (3 SHC) PHI 240 Introduction to Ethics (3 SHC)
Social/Behavioral Sciences (6 SHC) <i>Select two courses from the following from at least two different disciplines:</i> ECO 251 Principles of Microeconomics (3 SHC) ECO 252 Principles of Macroeconomics (3 SHC) HIS 111 World Civilizations I (3 SHC) HIS 112 World Civilizations II (3 SHC) HIS 131 American History I (3 SHC) HIS 132 American History II (3 SHC) POL 120 American Government (3 SHC) PSY 150 General Psychology (3 SHC) SOC 210 Introduction to Sociology (3 SHC)

<p>Math (8 SHC) <i>Select two courses from the following:</i></p> <table> <tr> <td>MAT 171 Precalculus Algebra</td> <td>(4 SHC)</td> </tr> <tr> <td>MAT 172 Pre-calculus Trigonometry</td> <td>(4 SHC)</td> </tr> <tr> <td>MAT 263 Brief Calculus</td> <td>(4 SHC)</td> </tr> <tr> <td>MAT 271 Calculus I</td> <td>(4 SHC)</td> </tr> </table> <p>Natural Sciences (8 SHC) <i>Select 8 SHC from the following course(s):</i></p> <p>AST 151 General Astronomy I (3 SHC) <i>and</i> AST 151A General Astronomy Lab I (1SHC) BIO 110 Principles of Biology (4 SHC) BIO 111 General Biology I (4 SHC) <i>and</i> BIO 112 General Biology II (4 SHC) CHM 151 General Chemistry I (4 SHC) <i>and</i> CHM 152 General Chemistry II (4 SHC) GEL 111 Introductory Geology (4 SHC) PHY 110 Conceptual Physics (3 SHC) <i>and</i> PHY 110A Conceptual Physics Lab (1 SHC) PHY 151 College Physics I (4 SHC) <i>and</i> PHY 152 College Physics II (4 SHC) PHY 251 General Physics I (4 SHC) <i>and</i> PHY 252 General Physics II (4 SHC)</p> <p>ADDITIONAL GENERAL EDUCATION HOURS (11 SHC) An additional 11 SHC of courses should be selected from courses classified as general education within the Comprehensive Articulation Agreement. Students should select these courses based on their intended major and transfer university.</p> <p>Total General Education Hours Required: 45</p>	MAT 171 Precalculus Algebra	(4 SHC)	MAT 172 Pre-calculus Trigonometry	(4 SHC)	MAT 263 Brief Calculus	(4 SHC)	MAT 271 Calculus I	(4 SHC)
MAT 171 Precalculus Algebra	(4 SHC)							
MAT 172 Pre-calculus Trigonometry	(4 SHC)							
MAT 263 Brief Calculus	(4 SHC)							
MAT 271 Calculus I	(4 SHC)							
<p>OTHER REQUIRED HOURS (15 SHC)</p> <p>Academic Transition (1 SHC) <i>The following course is required:</i></p> <table> <tr> <td>ACA 122 College Transfer Success</td> <td>(1 SHC)</td> </tr> </table> <p>An additional 14 SHC of courses should be selected from courses classified as pre-major, elective or general education courses within the Comprehensive Articulation Agreement. Students should select these courses based on their intended major and transfer university.</p> <p><i>*One semester hour of credit may be included in a 61 SHC associate in science program of study. The transfer of this hour is not guaranteed.</i></p>	ACA 122 College Transfer Success	(1 SHC)						
ACA 122 College Transfer Success	(1 SHC)							
<p>Total Semester Hours Credit (SHC) in Program: 60-61*</p>								

Students must meet the receiving university's foreign language and/or health and physical education requirements, if applicable, prior to or after transfer to the senior institution

APPENDIX G
COMPREHENSIVE ARTICULATION AGREEMENT
Transfer Course List

Effective Fall 2014
(Revised 04/25/14)

UGETC - Indicates a Universal General Education Transfer Component Course

<u>Community College Course</u>	<u>Transfer Designation</u>
ACA 122 College Transfer Success	AA/AS Required Course
ACC 120 Prin of Financial Accounting	Pre-Major/Elective
ACC 121 Prin of Managerial Accounting	Pre-Major/Elective
ANT 210 General Anthropology	GEN ED: Social/Behavioral Science
ANT 220 Cultural Anthropology	GEN ED: Social/Behavioral Science
ANT 221 Comparative Cultures	GEN ED: Social/Behavioral Science
ANT 240 Archaeology	GEN ED: Social/Behavioral Science
ANT 240A Archaeology Field Lab	Pre-Major/Elective
ANT 245 World Prehistory	Pre-Major/Elective
ARA 111 Elementary Arabic I	GEN ED: Humanities/Fine Arts
ARA 112 Elementary Arabic II	GEN ED: Humanities/Fine Arts
ARA 181 Arabic Lab I	Pre-Major/Elective
ARA 182 Arabic Lab II	Pre-Major/Elective
ARA 211 Intermediate Arabic I	GEN ED: Humanities/Fine Arts
ARA 212 Intermediate Arabic II	GEN ED: Humanities/Fine Arts
ART 111 Art Appreciation	UGETC: Humanities/Fine Arts – AA/AS
ART 113 Art Methods and Materials	Pre-Major/Elective
ART 114 Art History Survey I	UGETC: Humanities/Fine Arts – AA/AS
ART 115 Art History Survey II	UGETC: Humanities/Fine Arts – AA/AS
ART 116 Survey of American Art	GEN ED: Humanities/Fine Arts
ART 117 Non-Western Art History	GEN ED: Humanities/Fine Arts
ART 118 Art by Women	Pre-Major/Elective
ART 121 Two Dimensional Design	Pre-Major/Elective
ART 122 Three Dimensional Design	Pre-Major/Elective
ART 130 Basic Drawing	Pre-Major/Elective
ART 131 Drawing I	Pre-Major/Elective
ART 132 Drawing II	Pre-Major/Elective
ART 135 Figure Drawing I	Pre-Major/Elective
ART 140 Basic Painting	Pre-Major/Elective
ART 171 Computer Art I	Pre-Major/Elective
ART 212 Gallery Assistantship I	Pre-Major/Elective
ART 213 Gallery Assistantship II	Pre-Major/Elective
ART 214 Portfolio and Resume	Pre-Major/Elective
ART 222 Wood Design I	Pre-Major/Elective

ART 231	Printmaking I	Pre-Major/Elective
ART 232	Printmaking II	Pre-Major/Elective
ART 235	Figure Drawing II	Pre-Major/Elective
ART 240	Painting I	Pre-Major/Elective
ART 241	Painting II	Pre-Major/Elective
ART 242	Landscape Painting	Pre-Major/Elective
ART 243	Portrait Painting	Pre-Major/Elective
ART 244	Watercolor	Pre-Major/Elective
ART 245	Metals I	Pre-Major/Elective
ART 246	Metals II	Pre-Major/Elective
ART 247	Jewelry I	Pre-Major/Elective
ART 248	Jewelry II	Pre-Major/Elective
ART 250	Surface Design: Textiles	Pre-Major/Elective
ART 251	Weaving I	Pre-Major/Elective
ART 252	Weaving II	Pre-Major/Elective
ART 260	Photography Appreciation	Pre-Major/Elective
ART 261	Photography I	Pre-Major/Elective
ART 262	Photography II	Pre-Major/Elective
ART 264	Digital Photography I	Pre-Major/Elective
ART 265	Digital Photography II	Pre-Major/Elective
ART 266	Videography I	Pre-Major/Elective
ART 267	Videography II	Pre-Major/Elective
ART 271	Computer Art II	Pre-Major/Elective
ART 275	Intro to Commercial Art	Pre-Major/Elective
ART 281	Sculpture I	Pre-Major/Elective
ART 282	Sculpture II	Pre-Major/Elective
ART 283	Ceramics I	Pre-Major/Elective
ART 284	Ceramics II	Pre-Major/Elective
ART 285	Ceramics III	Pre-Major/Elective
ART 286	Ceramics IV	Pre-Major/Elective
ART 288	Studio	Pre-Major/Elective
ASL 111	Elementary ASL I	GEN ED: Humanities/Fine Arts
ASL 112	Elementary ASL II	GEN ED: Humanities/Fine Arts
ASL 181	ASL Lab 1	Pre-Major/Elective
ASL 182	ASL Lab 2	Pre-Major/Elective
ASL 211	Intermediate ASL I	GEN ED: Humanities/Fine Arts
ASL 212	Intermediate ASL II	GEN ED: Humanities/Fine Arts
ASL 281	ASL Lab 3	Pre-Major/Elective
ASL 282	ASL Lab 4	Pre-Major/Elective
AST 111	Descriptive Astronomy	UGETC: Natural Sciences – AA
AST 111A	Descriptive Astronomy Lab	UGETC: Natural Sciences – AA
AST 151	General Astronomy I	UGETC: Natural Sciences – AA/AS
AST 151A	General Astronomy I Lab	UGETC: Natural Sciences – AA/AS
AST 152	General Astronomy II	GEN ED: Natural Science
AST 152A	General Astronomy II Lab	GEN ED: Natural Science
AST 251	Observational Astronomy	Pre-Major/Elective
BIO 110	Principles of Biology	UGETC: Natural Sciences – AA/AS
BIO 111	General Biology I	UGETC: Natural Sciences – AA/AS

BIO 112	General Biology II	UGETC: Natural Sciences – AS
BIO 120	Introductory Botany	GEN ED: Natural Science
BIO 130	Introductory Zoology	GEN ED: Natural Science
BIO 140	Environmental Biology	GEN ED: Natural Science
BIO 140A	Environmental Biology Lab	GEN ED: Natural Science
BIO 143	Field Biology Minicourse	Pre-Major/Elective
BIO 145	Ecology	Pre-Major/Elective
BIO 146	Regional Natural History	Pre-Major/Elective
BIO 150	Genetics in Human Affairs	Pre-Major/Elective
BIO 155	Nutrition	Pre-Major/Elective
BIO 163	Basic Anat & Physiology	Pre-Major/Elective
BIO 165	Anatomy and Physiology I	Pre-Major/Elective
BIO 166	Anatomy and Physiology II	Pre-Major/Elective
BIO 168	Anatomy and Physiology I	Pre-Major/Elective
BIO 169	Anatomy and Physiology II	Pre-Major/Elective
BIO 175	General Microbiology	Pre-Major/Elective
BIO 180	Biological Chemistry	Pre-Major/Elective
BIO 224	Local Flora Spring	Pre-Major/Elective
BIO 230	Entomology	Pre-Major/Elective
BIO 242	Natural Resource Conservation	Pre-Major/Elective
BIO 243	Marine Biology	Pre-Major/Elective
BIO 250	Genetics	Pre-Major/Elective
BIO 265	Cell Biology	Pre-Major/Elective
BIO 271	Pathophysiology	Pre-Major/Elective
BIO 275	Microbiology	Pre-Major/Elective
BIO 280	Biotechnology	Pre-Major/Elective
BUS 110	Introduction to Business	Pre-Major/Elective
BUS 115	Business Law I	Pre-Major/Elective
BUS 137	Principles of Management	Pre-Major/Elective
BUS 228	Business Statistics	Pre-Major/Elective
CHI 111	Elementary Chinese I	GEN ED: Humanities/Fine Arts
CHI 112	Elementary Chinese II	GEN ED: Humanities/Fine Arts
CHI 181	Chinese Lab I	Pre-Major/Elective
CHI 182	Chinese Lab II	Pre-Major/Elective
CHI 211	Intermediate Chinese I	GEN ED: Humanities/Fine Arts
CHI 212	Intermediate Chinese II	GEN ED: Humanities/Fine Arts
CHM 115	Concepts in Chemistry	Pre-Major/Elective
CHM 115A	Concepts in Chemistry Lab	Pre-Major/Elective
CHM 130	Gen, Org, & Biochemistry	Pre-Major/Elective
CHM 130A	Gen, Org, & Biochemistry Lab	Pre-Major/Elective
CHM 131	Introduction to Chemistry	GEN ED: Natural Science
CHM 131A	Introduction to Chemistry Lab	GEN ED: Natural Science
CHM 132	Organic and Biochemistry	GEN ED: Natural Science
CHM 135	Survey of Chemistry I	GEN ED: Natural Science
CHM 136	Survey of Chemistry II	GEN ED: Natural Science
CHM 151	General Chemistry I	UGETC: Natural Sciences – AA/AS
CHM 152	General Chemistry II	UGETC: Natural Sciences – AS
CHM 251	Organic Chemistry I	Pre-Major/Elective

CHM 252	Organic Chemistry II	Pre-Major/Elective
CHM 263	Analytical Chemistry	Pre-Major/Elective
CHM 271	Biochemical Principles	Pre-Major/Elective
CHM 271A	Biochemical Principles Lab	Pre-Major/Elective
CIS 110	Intro to Computers	GEN ED: Mathematics
CIS 115	Intro to Prog & Logic	GEN ED: Mathematics
CJC 111	Intro to Criminal Justice	Pre-Major/Elective
CJC 121	Law Enforcement Operations	Pre-Major/Elective
CJC 141	Corrections	Pre-Major/Elective
COM 110	Introduction to Communication	GEN ED: Communications
COM 111	Voice and Diction I	Pre-Major/Elective
COM 120	Intro Interpersonal Com	GEN ED: Communications
COM 130	Nonverbal Communication	Pre-Major/Elective
COM 140	Intro Intercultural Com	GEN ED: Communication
COM 150	Intro. to Mass Communication	Pre-Major/Elective
COM 160	Small Group Communication	Pre-Major/Elective
COM 231	Public Speaking	UGETC: Communications – AA/AS
COM 251	Debate I	Pre-Major/Elective
CSC 120	Computing Fundamentals I	Pre-Major/Elective
CSC 130	Computing Fundamentals II	Pre-Major/Elective
CSC 134	C++ Programming	Pre-Major/Elective
CSC 139	Visual BASIC Prog	Pre-Major/Elective
CSC 151	JAVA Programming	Pre-Major/Elective
CSC 239	Adv Visual BASIC Prog	Pre-Major/Elective
CTS 115	Info Sys Business Concept	Pre-Major/Elective
DAN 110	Dance Appreciation	GEN ED: Humanities/Fine Arts
DFT 170	Engineering Graphics	Pre-Major/Elective
DRA 111	Theatre Appreciation	GEN ED: Humanities/Fine Arts
DRA 112	Literature of the Theatre	GEN ED: Humanities/Fine Arts
DRA 115	Theatre Criticism	GEN ED: Humanities/Fine Arts
DRA 120	Voice for Performance	Pre-Major/Elective
DRA 122	Oral Interpretation	GEN ED: Humanities/Fine Arts
DRA 124	Readers Theatre	Pre-Major/Elective
DRA 126	Storytelling	GEN ED: Humanities/Fine Arts
DRA 128	Children's Theatre	Pre-Major/Elective
DRA 130	Acting I	Pre-Major/Elective
DRA 131	Acting II	Pre-Major/Elective
DRA 132	Stage Movement	Pre-Major/Elective
DRA 135	Acting for the Camera I	Pre-Major/Elective
DRA 136	Acting for the Camera II	Pre-Major/Elective
DRA 140	Stagecraft I	Pre-Major/Elective
DRA 141	Stagecraft II	Pre-Major/Elective

DRA 142	Costuming	Pre-Major/Elective
DRA 145	Stage Make-up	Pre-Major/Elective
DRA 170	Play Production I	Pre-Major/Elective
DRA 171	Play Production II	Pre-Major/Elective
DRA 175	Teleplay Production I	Pre-Major/Elective
DRA 211	Theatre History I	GEN ED: Humanities/Fine Arts
DRA 212	Theatre History II	GEN ED: Humanities/Fine Arts
DRA 230	Acting III	Pre-Major/Elective
DRA 231	Acting IV	Pre-Major/Elective
DRA 240	Lighting for the Theatre	Pre-Major/Elective
DRA 260	Directing	Pre-Major/Elective
DRA 270	Play Production III	Pre-Major/Elective
DRA 271	Play Production IV	Pre-Major/Elective
ECO 151	Survey of Economics	GEN ED: Social and Behavioral Science
ECO 251	Prin of Microeconomics	UGETC: Social/Behavioral Sci – AA/AS
ECO 252	Prin of Macroeconomics	UGETC: Social/Behavioral Sci – AA/AS
EGR 120	Eng and Design Graphics	Pre-Major/Elective
EGR 150	Intro to Engineering	Pre-Major/Elective
EGR 210	Intro to Elect/Com Eng Lab	Pre-Major/Elective
EGR 212	Logic System Design I	Pre-Major/Elective
EGR 215	Network Theory I	Pre-Major/Elective
EGR 216	Logic and Networks Lab I	Pre-Major/Elective
EGR 220	Engineering Statics	Pre-Major/Elective
EGR 225	Engineering Dynamics	Pre-Major/Elective
EGR 228	Intro to Solid Mechanics	Pre-Major/Elective
ENG 111	Writing & Inquiry	UGETC: English Comp - AA & AS
ENG 112	Writing/Research in the Disciplines	UGETC: English Comp - AA & AS
ENG 113	Literature-Based Research	GEN ED: English Composition
ENG 114	Prof Research and Reporting	GEN ED: English Composition
ENG 125	Creative Writing I	Pre-Major/Elective
ENG 126	Creative Writing II	Pre-Major/Elective
ENG 131	Introduction to Literature	GEN ED: Humanities/Fine Arts
ENG 132	Introduction to Drama	Pre-Major/Elective
ENG 134	Introduction to Poetry	Pre-Major/Elective
ENG 231	American Literature I	UGETC: Humanities/Fine Arts – AA/AS
ENG 232	American Literature II	UGETC: Humanities/Fine Arts – AA/AS
ENG 233	Major American Writers	GEN ED: Humanities/Fine Arts
ENG 235	Survey of Film as Literature	Pre-Major/Elective
ENG 241	British Literature I	GEN ED: Humanities/Fine Arts
ENG 242	British Literature II	GEN ED: Humanities/Fine Arts
ENG 243	Major British Writers	GEN ED: Humanities/Fine Arts
ENG 251	Western World Literature I	GEN ED: Humanities/Fine Arts
ENG 252	Western World Literature II	GEN ED: Humanities/Fine Arts
ENG 253	The Bible as Literature	Pre-Major/Elective
ENG 261	World Literature I	GEN ED: Humanities/Fine Arts
ENG 262	World Literature II	GEN ED: Humanities/Fine Arts
ENG 271	Contemporary Literature	Pre-Major/Elective
ENG 272	Southern Literature	Pre-Major/Elective

ENG 273	African-American Literature	Pre-Major/Elective
ENG 274	Literature by Women	Pre-Major/Elective
ENG 275	Science Fiction	Pre-Major/Elective
FRE 111	Elementary French I	GEN ED: Humanities/Fine Arts
FRE 112	Elementary French II	GEN ED: Humanities/Fine Arts
FRE 141	Culture and Civilization	Pre-Major/Elective
FRE 151	Francophone Literature	Pre-Major/Elective
FRE 161	Cultural Immersion	Pre-Major/Elective
FRE 181	French Lab 1	Pre-Major/Elective
FRE 182	French Lab 2	Pre-Major/Elective
FRE 211	Intermediate French I	GEN ED: Humanities/Fine Arts
FRE 212	Intermediate French II	GEN ED: Humanities/Fine Arts
FRE 221	French Conversation	Pre-Major/Elective
FRE 231	Reading and Composition	Pre-Major/Elective
FRE 281	French Lab 3	Pre-Major/Elective
FRE 282	French Lab 4	Pre-Major/Elective
GEL 111	Introductory Geology	UGETC: Natural Sciences – AA/AS
GEL 113	Historical Geology	GEN ED: Natural Science
GEL 120	Physical Geology	GEN ED: Natural Science
GEL 230	Environmental Geology	GEN ED: Natural Science
GEO 110	Introduction to Geography	Pre-Major/Elective
GEO 111	World Regional Geography	GEN ED: Social/Behavioral Science
GEO 112	Cultural Geography	GEN ED: Social/Behavioral Science
GEO 130	General Physical Geography	GEN ED: Social/Behavioral Science
GEO 131	Physical Geography I	Pre-Major/Elective
GER 111	Elementary German I	GEN ED: Humanities/Fine Arts
GER 112	Elementary German II	GEN ED: Humanities/Fine Arts
GER 141	Culture and Civilization	Pre-Major/Elective
GER 161	Cultural Immersion	Pre-Major/Elective
GER 181	German Lab 1	Pre-Major/Elective
GER 182	German Lab 2	Pre-Major/Elective
GER 211	Intermediate German I	GEN ED: Humanities/Fine Arts
GER 212	Intermediate German II	GEN ED: Humanities/Fine Arts
GER 221	German Conversation	Pre-Major/Elective
GER 231	Reading and Composition	Pre-Major/Elective
GER 281	German Lab 3	Pre-Major/Elective
GER 282	German Lab 4	Pre-Major/Elective
GIS 111	Introduction to GIS	Pre-Major/Elective
HEA 110	Personal Health/Wellness	Pre-Major/Elective
HEA 112	First Aid & CPR	Pre-Major/Elective
HEA 120	Community Health	Pre-Major/Elective
HIS 111	World Civilizations I	UGETC: Social/Behavioral Sci.– AA/AS
HIS 112	World Civilizations II	UGETC: Social/Behavioral Sci.– AA/AS
HIS 115	Intro to Global History	GEN ED: Social/Behavioral Science

HIS 116	Current World Problems	Pre-Major/Elective
HIS 121	Western Civilization I	GEN ED: Social/Behavioral Science
HIS 122	Western Civilization II	GEN ED: Social/Behavioral Science
HIS 131	American History I	UGETC: Social/Behavioral Sci.– AA/AS
HIS 132	American History II	UGETC: Social/Behavioral Sci.– AA/AS
HIS 141	Genealogy & Local History	Pre-Major/Elective
HIS 145	The Second World War	Pre-Major/Elective
HIS 151	Hispanic Civilization	Pre-Major/Elective
HIS 162	Women and History	Pre-Major/Elective
HIS 163	The World Since 1945	Pre-Major/Elective
HIS 165	Twentieth-Century World	Pre-Major/Elective
HIS 167	The Vietnam War	Pre-Major/Elective
HIS 211	Ancient History	Pre-Major/Elective
HIS 212	Medieval History	Pre-Major/Elective
HIS 216	Twentieth-Century Europe	Pre-Major/Elective
HIS 221	African-American History	Pre-Major/Elective
HIS 222	African-American Hist I	Pre-Major/Elective
HIS 223	African-American Hist II	Pre-Major/Elective
HIS 226	The Civil War	Pre-Major/Elective
HIS 227	Native American History	Pre-Major/Elective
HIS 228	History of the South	Pre-Major/Elective
HIS 229	History of the Old South	Pre-Major/Elective
HIS 230	The Changing South	Pre-Major/Elective
HIS 231	Recent American History	Pre-Major/Elective
HIS 232	History of the Old West	Pre-Major/Elective
HIS 233	History of Appalachia	Pre-Major/Elective
HIS 234	Cherokee History	Pre-Major/Elective
HIS 236	North Carolina History	Pre-Major/Elective
HIS 237	The American Revolution	Pre-Major/Elective
HIS 260	History of Africa	Pre-Major/Elective
HIS 261	East Asian History	Pre-Major/Elective
HIS 262	Middle East History	Pre-Major/Elective
HIS 271	The French Revolution Era	Pre-Major/Elective
HIS 275	History of Terrorism	Pre-Major/Elective
HUM 110	Technology and Society	GEN ED: Humanities/Fine Arts
HUM 115	Critical Thinking	GEN ED: Humanities/Fine Arts
HUM 120	Cultural Studies	GEN ED: Humanities/Fine Arts
HUM 121	The Nature of America	GEN ED: Humanities/Fine Arts
HUM 122	Southern Culture	GEN ED: Humanities/Fine Arts
HUM 123	Appalachian Culture	Pre-Major/Elective
HUM 130	Myth in Human Culture	GEN ED: Humanities/Fine Arts
HUM 140	History of Architecture	Pre-Major/Elective
HUM 150	American Women's Studies	GEN ED: Humanities/Fine Arts
HUM 160	Introduction to Film	GEN ED: Humanities/Fine Arts
HUM 161	Advanced Film Studies	GEN ED: Humanities/Fine Arts
HUM 170	The Holocaust	Pre-Major/Elective
HUM 180	International Cultural Exploration	Pre-Major/Elective
HUM 211	Humanities I	GEN ED: Humanities/Fine Arts
HUM 212	Humanities II	GEN ED: Humanities/Fine Arts
HUM 220	Human Values and Meaning	GEN ED: Humanities/Fine Arts

HUM 230	Leadership Development	Pre-Major/Elective
ITA 111	Elementary Italian I	GEN ED: Humanities/Fine Arts
ITA 112	Elementary Italian II	GEN ED: Humanities/Fine Arts
ITA 181	Italian Lab 1	Pre-Major/Elective
ITA 182	Italian Lab 2	Pre-Major/Elective
ITA 211	Intermediate Italian I	GEN ED: Humanities/Fine Arts
ITA 212	Intermediate Italian II	GEN ED: Humanities/Fine Arts
ITA 221	Italian Conversation	Pre-Major/Elective
ITA 231	Reading and Composition	Pre-Major/Elective
ITA 281	Italian Lab 3	Pre-Major/Elective
ITA 282	Italian Lab 4	Pre-Major/Elective
JOU 110	Intro to Journalism	Pre-Major/Elective
JOU 216	Writing for Mass Media	Pre-Major/Elective
JOU 217	Feature/Editorial Writing	Pre-Major/Elective
JPN 111	Elementary Japanese I	GEN ED: Humanities/Fine Arts
JPN 112	Elementary Japanese II	GEN ED: Humanities/Fine Arts
JPN 181	Japanese Lab I	Pre-Major/Elective
JPN 182	Japanese Lab II	Pre-Major/Elective
JPN 211	Intermediate Japanese I	GEN ED: Humanities/Fine Arts
JPN 212	Intermediate Japanese II	GEN ED: Humanities/Fine Arts
LAT 111	Elementary Latin I	GEN ED: Humanities/Fine Arts
LAT 112	Elementary Latin II	GEN ED: Humanities/Fine Arts
LAT 141	Culture and Civilization	GEN ED: Humanities/Fine Arts
LAT 142	Lit. & the Roman Republic	GEN ED: Humanities/Fine Arts
LAT 181	Latin Lab I	Pre-Major/Elective
LAT 182	Latin Lab II	Pre-Major/Elective
LAT 211	Intermediate Latin I	GEN ED: Humanities/Fine Arts
LAT 212	Intermediate Latin II	GEN ED: Humanities/Fine Arts
LAT 231	Reading and Composition	GEN ED: Humanities/Fine Arts
LAT 232	Imperial Literature	GEN ED: Humanities/Fine Arts
LAT 281	Latin Lab III	Pre-Major/Elective
LAT 282	Latin Lab IV	Pre-Major/Elective
MAT 141	Mathematical Concepts I	GEN ED: Mathematics
MAT 142	Mathematical Concepts II	GEN ED: Mathematics
MAT 143	Quantitative Literacy	UGETC: Math – AA
MAT 152	Statistical Methods I	UGETC: Math – AA
MAT 167	Discrete Mathematics	Pre-Major/Elective
MAT 171	Precalculus Algebra	UGETC: Math – AA/AS
MAT 172	Precalculus Trigonometry	UGETC: Math – AS
MAT 252	Statistics II	Pre-Major/Elective
MAT 263	Brief Calculus	UGETC: Math – AS
MAT 271	Calculus I	UGETC: Math – AS
MAT 272	Calculus II	GEN ED: Mathematics
MAT 273	Calculus III	GEN ED: Mathematics
MAT 280	Linear Algebra	Pre-Major/Elective
MAT 285	Differential Equations	Pre-Major/Elective

MUS 110	Music Appreciation	UGETC: Humanities/Fine Arts – AA/AS
MUS 111	Fundamentals of Music	Pre-Major/Elective
MUS 112	Introduction to Jazz	UGETC: Humanities/Fine Arts – AA/AS
MUS 113	American Music	GEN ED: Humanities/Fine Arts
MUS 114	Non-Western Music	GEN ED: Humanities/Fine Arts
MUS 121	Music Theory I	Pre-Major/Elective
MUS 122	Music Theory II	Pre-Major/Elective
MUS 123	Music Composition	Pre-Major/Elective
MUS 131	Chorus I	Pre-Major/Elective
MUS 132	Chorus II	Pre-Major/Elective
MUS 133	Band I	Pre-Major/Elective
MUS 134	Band II	Pre-Major/Elective
MUS 135	Jazz Ensemble I	Pre-Major/Elective
MUS 136	Jazz Ensemble II	Pre-Major/Elective
MUS 137	Orchestra I	Pre-Major/Elective
MUS 138	Orchestra II	Pre-Major/Elective
MUS 141	Ensemble I	Pre-Major/Elective
MUS 142	Ensemble II	Pre-Major/Elective
MUS 151	Class Music I	Pre-Major/Elective
MUS 152	Class Music II	Pre-Major/Elective
MUS 161	Applied Music I	Pre-Major/Elective
MUS 162	Applied Music II	Pre-Major/Elective
MUS 173	Opera Production I	Pre-Major/Elective
MUS 174	Opera Production II	Pre-Major/Elective
MUS 181	Show Choir I	Pre-Major/Elective
MUS 182	Show Choir II	Pre-Major/Elective
MUS 210	History of Rock Music	GEN ED: Humanities/Fine Arts
MUS 211	History of Country Music	GEN ED: Humanities/Fine Arts
MUS 212	American Musical Theatre	GEN ED: Humanities/Fine Arts
MUS 213	Opera and Musical Theatre	GEN ED: Humanities/Fine Arts
MUS 214	Electronic Music I	Pre-Major/Elective
MUS 215	Electronic Music II	Pre-Major/Elective
MUS 217	Elementary Conducting	Pre-Major/Elective
MUS 221	Music Theory III	Pre-Major/Elective
MUS 222	Music Theory IV	Pre-Major/Elective
MUS 231	Chorus III	Pre-Major/Elective
MUS 232	Chorus IV	Pre-Major/Elective
MUS 233	Band III	Pre-Major/Elective
MUS 234	Band IV	Pre-Major/Elective
MUS 235	Jazz Ensemble III	Pre-Major/Elective
MUS 236	Jazz Ensemble IV	Pre-Major/Elective
MUS 237	Orchestra III	Pre-Major/Elective
MUS 238	Orchestra IV	Pre-Major/Elective
MUS 241	Ensemble III	Pre-Major/Elective
MUS 242	Ensemble IV	Pre-Major/Elective
MUS 251	Class Music III	Pre-Major/Elective
MUS 252	Class Music IV	Pre-Major/Elective
MUS 253	Big Band	Pre-Major/Elective
MUS 261	Applied Music III	Pre-Major/Elective
MUS 262	Applied Music IV	Pre-Major/Elective

MUS 265	Piano Pedagogy	Pre-Major/Elective
MUS 271	Music History I	Pre-Major/Elective
MUS 272	Music History II	Pre-Major/Elective
MUS 273	Opera Production III	Pre-Major/Elective
MUS 274	Opera Production IV	Pre-Major/Elective
MUS 280	Music for the El Classroom	Pre-Major/Elective
MUS 281	Show Choir III	Pre-Major/Elective
MUS 282	Show Choir IV	Pre-Major/Elective
MUS 283	Varied Cultures/Mus Perf	Pre-Major/Elective
PED	<i>All one-hour PED activity courses</i>	Pre-Major/Elective
PED 110	Fit and Well for Life	Pre-Major/Elective
PED 165	Sport Science as a Career	Pre-Major/Elective
PED 172	Outdoor Living	Pre-Major/Elective
PED 252	Officiating/Bsball/Sfball	Pre-Major/Elective
PED 254	Coaching Basketball	Pre-Major/Elective
PED 256	Coaching Baseball	Pre-Major/Elective
PED 259	Prev & Care Ath Injuries	Pre-Major/Elective
PHI 210	History of Philosophy	GEN ED: Humanities/Fine Arts
PHI 215	Philosophical Issues	UGETC: Humanities/Fine Arts – AA/AS
PHI 220	Western Philosophy I	GEN ED: Humanities/Fine Arts
PHI 230	Introduction to Logic	GEN ED: Humanities/Fine Arts
PHI 240	Introduction to Ethics	UGETC: Humanities/Fine Arts – AA/AS
PHS 110	Survey of Phys Science	Pre-Major/Elective
PHS 130	Earth Science	Pre-Major/Elective
PHY 110	Conceptual Physics	UGETC: Natural Sciences – AA/AS
PHY 110A	Conceptual Physics Lab	UGETC: Natural Sciences – AA/AS
PHY 151	College Physics I	UGETC: Natural Sciences – AS
PHY 152	College Physics II	UGETC: Natural Sciences – AS
PHY 251	General Physics I	UGETC: Natural Sciences – AS
PHY 252	General Physics II	UGETC: Natural Sciences – AS
POL 110	Intro to Political Science	GEN ED: Social/Behavioral Science
POL 120	American Government	UGETC: Social/Behavioral Sci.– AA/AS
POL 130	State & Local Government	Pre-Major/Elective
POL 210	Comparative Government	GEN ED: Social/Behavioral Science
POL 220	International Relations	GEN ED: Social/Behavioral Science
POL 250	Intro to Political Theory	Pre-Major/Elective
POR 111	Elementary Portuguese I	GEN ED: Humanities/Fine Arts
POR 112	Elementary Portuguese II	GEN ED: Humanities/Fine Arts
POR 141	Culture and Civilization	Pre-Major/Elective
POR 181	Portuguese Lab I	Pre-Major/Elective
POR 182	Portuguese Lab II	Pre-Major/Elective
POR 211	Intermediate Portuguese I	GEN ED: Humanities/Fine Arts
POR 212	Intermediate Portuguese II	GEN ED: Humanities/Fine Arts
POR 221	Portuguese Conversation	Pre-Major/Elective

POR 231	Reading and Composition	Pre-Major/Elective
POR 281	Portuguese Lab III	Pre-Major/Elective
POR 282	Portuguese Lab IV	Pre-Major/Elective
PSY 150	General Psychology	UGETC: Social/Behavioral Sci.– AA/AS
PSY 211	Psychology of Adjustment	Pre-Major/Elective
PSY 215	Positive Psychology	Pre-Major/Elective
PSY 231	Forensic Psychology	Pre-Major/Elective
PSY 237	Social Psychology	GEN ED: Social/Behavioral Science
PSY 239	Psychology of Personality	GEN ED: Social/Behavioral Science
PSY 241	Developmental Psych	GEN ED: Social/Behavioral Science
PSY 243	Child Psychology	Pre-Major/Elective
PSY 246	Adolescent Psychology	Pre-Major/Elective
PSY 249	Psychology of Aging	Pre-Major/Elective
PSY 259	Human Sexuality	Pre-Major/Elective
PSY 263	Educational Psychology	Pre-Major/Elective
PSY 271	Sports Psychology	Pre-Major/Elective
PSY 275	Health Psychology	Pre-Major/Elective
PSY 281	Abnormal Psychology	GEN ED: Social/Behavioral Science
REL 110	World Religions	GEN ED: Humanities/Fine Arts
REL 111	Eastern Religions	GEN ED: Humanities/Fine Arts
REL 112	Western Religions	GEN ED: Humanities/Fine Arts
REL 211	Intro to Old Testament	GEN ED: Humanities/Fine Arts
REL 212	Intro to New Testament	GEN ED: Humanities/Fine Arts
REL 221	Religion in America	GEN ED: Humanities/Fine Arts
RUS 111	Elementary Russian I	GEN ED: Humanities/Fine Arts
RUS 112	Elementary Russian II	GEN ED: Humanities/Fine Arts
RUS 181	Russian Lab 1	Pre-Major/Elective
RUS 182	Russian Lab 2	Pre-Major/Elective
RUS 211	Intermediate Russian I	GEN ED: Humanities/Fine Arts
RUS 212	Intermediate Russian II	GEN ED: Humanities/Fine Arts
RUS 221	Russian Conversation	Pre-Major/Elective
RUS 231	Reading and Composition	Pre-Major/Elective
RUS 281	Russian Lab 3	Pre-Major/Elective
RUS 282	Russian Lab 4	Pre-Major/Elective
SOC 210	Introduction to Sociology	UGETC: Social/Behavioral Sci.– AA/AS
SOC 213	Sociology of the Family	GEN ED: Social/Behavioral Science
SOC 215	Group Processes	Pre-Major/Elective
SOC 220	Social Problems	GEN ED: Social/Behavioral Science
SOC 225	Social Diversity	GEN ED: Social/Behavioral Science
SOC 230	Race and Ethnic Relations	GEN ED: Social/Behavioral Science
SOC 232	Social Context of Aging	Pre-Major/Elective
SOC 234	Sociology of Gender	Pre-Major/Elective
SOC 240	Social Psychology	GEN ED: Social/Behavioral Science
SOC 242	Sociology of Deviance	Pre-Major/Elective
SOC 244	Soc of Death & Dying	Pre-Major/Elective
SOC 245	Drugs and Society	Pre-Major/Elective
SOC 250	Sociology of Religion	Pre-Major/Elective

SOC 254	Rural and Urban Sociology	Pre-Major/Elective
SPA 111	Elementary Spanish I	GEN ED: Humanities/Fine Arts
SPA 112	Elementary Spanish II	GEN ED: Humanities/Fine Arts
SPA 141	Culture and Civilization	Pre-Major/Elective
SPA 161	Cultural Immersion	Pre-Major/Elective
SPA 181	Spanish Lab 1	Pre-Major/Elective
SPA 182	Spanish Lab 2	Pre-Major/Elective
SPA 211	Intermediate Spanish I	GEN ED: Humanities/Fine Arts
SPA 212	Intermediate Spanish II	GEN ED: Humanities/Fine Arts
SPA 221	Spanish Conversation	Pre-Major/Elective
SPA 231	Reading and Composition	Pre-Major/Elective
SPA 281	Spanish Lab 3	Pre-Major/Elective
SPA 282	Spanish Lab 4	Pre-Major/Elective

Appendix C: Report on Study of Bilateral Agreements and Partnerships between UNC and NCCCS



REPORT ON STUDY OF BILATERAL AGREEMENTS AND PARTNERSHIPS THAT EXIST BETWEEN CONSITUENT INSTITUTIONS OF THE NORTH CAROLINA COMMUNITY COLLEGES AND CONSTITUENT INSTITUTIONS OF THE UNIVERSITY OF NORTH CAROLINA

A Report to the:
Joint Legislative Education Oversight Committee, Senate Appropriations Committee on
Education/Higher Education, and the House Appropriations Subcommittee on Education

Submitted By
The State Board of Community Colleges, and
The Board of Governors of The University of North Carolina

FEBRUARY 1, 2015

As Required by
Section 10.7 of Session Law 2014-100 (SB 744)

I. Background

The Board of Governors of The University of North Carolina and the State Board of Community Colleges were asked to study the various bilateral agreements and partnerships that exist between their constituent institutions throughout the State. The focus should be on those agreements and partnerships that aid in the transfer process and that encourage or require students to complete some coursework at a community college before attending or transferring to a constituent institution including data, to the extent that information is available, on the following:

- (i) A description of the agreement or partnership;
- (ii) The number of years it has been in existence;
- (iii) The number of participants by year; and
- (iv) An analysis of student outcomes after transfer under the agreement or partnership.

Finally, recommendations on replication and expansion possibilities for the various agreements and partnerships were also requested.

II. Definition of agreements and partnerships

As colleges and universities work together in many ways through both local and statewide agreements and partnerships, the first necessary step in a comprehensive study of these collaborations is to ensure clarity in the terminology that is used. With that in mind, UNC General Administration (UNCGA) and the North Carolina Community College System (NCCCS) have begun to develop a set of shared definitions for these strategies. The development began with a conversation at UNCGA June 2014, followed by discussion with the Transfer Advisory Committee, and North Carolina Community College Chief Academic Officers in July 2014. The following definitions were vetted by the UNCGA and NCCCS leadership and finalized in August 2014 for use in identifying and communicating shared strategies among the constituent institutions.

Partnerships

Relationships between the universities and community colleges extend beyond formal articulation agreements. In particular these institutional partnerships allow our institutions to leverage existing resources to achieve greater efficiencies in facilitating student access and success as they move from community college to senior institution.

Articulation Agreements

Broadly, Articulation Agreements are the principal instruments that facilitate transfer between institutions (Anderson, 2006). The primary objective of articulation policy is curriculum alignment, specifically the alignment of two-year program curricula to their four-year counterparts. There are several different types of articulation agreements which will be defined below.

1) Articulation Agreements for the Associate in Arts or Associate in Science

Comprehensive Articulation Agreement (CAA)

The CAA is a statewide agreement governing the transfer of credits from NCCCS to the UNC System. The CAA provides certain assurances to the transferring student; for example, students who earn an Associate's in Arts (AA) or an Associate's in Science (AS) degree according to the guidelines of the CAA will be treated as juniors at the receiving UNC institution. Benefits of the CAA do not apply to either the Associate in General Education (AGE) degree or an Associate's in Applied Science (AAS) degrees.

CAA Baccalaureate Degree Plans

Each UNC institution will develop, publish, and maintain four-year degree plans identifying community college courses that provide pathways leading to associate degree completion, admission into the major, and baccalaureate completion. Students who complete the AA or AS degree and the degree plan tracks published by a UNC institution, and who are accepted into that institution and into that major within four years of initial enrollment at the community college, will continue into that major at the UNC institution with all courses fulfilling lower division general education and other degree requirements.

CAA Extension Agreements

CAA extension agreements build upon the CAA framework to create transfer arrangements for individual NCCCS AA or AS programs to specific programs at a UNC institution, and may include technical courses. Prior naming conventions include 2+2 or 2+3 programs.

CAA Bi-lateral Agreement

A CAA bilateral agreement is when one university and one community college join in a collaborative effort to facilitate the transfer of students from a specific AA/AS degree program to a specific baccalaureate degree program.

CAA Multi-lateral Agreement

A CAA multi-lateral agreement is one university and two or more community colleges collaborating to facilitate the transfer of students from specific AA/ AS degree programs to a single baccalaureate degree program.

CAA Consortium Agreements

A consortium agreement involves multiple universities and two or more community colleges collaborating to facilitate the transfer of students from a specific AA/AS degree program to a specific baccalaureate degree program.

2) Articulation Agreements for the Associate in Applied Science (AAS)

AAS Lateral & Consortium Agreements

AAS Lateral & Consortium Agreements stem from transfer arrangements created for individual NCCCS AAS programs to specific programs at UNC institutions. These arise from special circumstances such as: different accreditation criteria for faculty in transfer and non-transfer programs, the different general education requirements for transfer and non-transfer programs, and the workforce preparedness mission of the community college AAS programs. Prior naming conventions include 2+2 or 2+3 programs. The following are several types of lateral and consortium agreements:

AAS Bi-lateral Agreement

An AAS bi-lateral agreement is when one university and one community college join in a collaborative effort to facilitate the transfer of students from a specific AAS degree program to a specific baccalaureate degree program (e.g., AAS in Criminal Justice to Bachelor of Science in Criminal Justice or Bachelor of Science in Criminal Justice).

AAS Multi-lateral Agreements

An AAS multi-lateral agreement is one university and two or more community colleges collaborating to facilitate the transfer of students from specific AAS degree programs to a single baccalaureate degree program (e.g. UNCW's Aquaculture Technology Articulation Agreement with Brunswick Community College and Carteret Community College which governs the transfer of credit between the AAS degree in Aquaculture Technology and Bachelor of Science degree in Marine Biology).

AAS Consortium Agreements

A consortium bilateral agreement involves multiple universities and two or more community colleges collaborating to facilitate the transfer of students from a specific AAS degree program to a specific baccalaureate degree program.

Statewide AAS Lateral Agreements

Though none currently exist, a statewide lateral agreement would occur when all 16 UNC universities and all 58 NCCCS institutions agree on articulation from a specific AAS program to a specific baccalaureate degree program (e.g., Minnesota's statewide RN to BSN program).

3) Articulation Agreements for the Associate in Fine Arts (AFA)

AFA Lateral & Consortium Agreements

AFA Lateral & Consortium Agreements stem from transfer arrangements created for individual NCCCS AFA programs to specific programs at UNC institutions. Prior naming conventions include 2+2 or 2+3 programs. The following are several types of lateral and consortium agreements:

AFA Bi-lateral Agreement

An AFA bi-lateral agreement is when one university and one community college join in a collaborative effort to facilitate the transfer of students from a specific AFA degree program to a specific baccalaureate degree program.

AFA Multi-lateral Agreements

An AFA multi-lateral agreement is one university and two or more community colleges collaborating to facilitate the transfer of students from specific AFA degree programs to a single baccalaureate degree program.

AFA Consortium Agreements

A consortium bilateral agreement involves multiple universities and two or more community colleges collaborating to facilitate the transfer of students from a specific AFA degree program to a specific baccalaureate degree program.

Statewide AFA Lateral Agreements

Though none currently exist, a statewide AFA lateral agreement would occur when all 16 UNC universities and all 58 NCCCS institutions agree on articulation from a specific AFA program to a specific baccalaureate degree program.

4) Programs and Services

In addition to the aforementioned policy levers, we recognize that some of the most successful efforts to foster transfer student success occur through smaller, targeted institutional efforts.

Formal Transfer Student Support Programs

Formal programs are those that require a prospective transfer student to apply and be admitted into the program and/or meet specific requirements before acceptance (e.g. completion of an Associate's degree). Examples of formal programs are UNC Chapel Hill's C-STEP Program and UNC Charlotte's/Central Piedmont Community College's Passport program.

Informal Transfer Student Support Programs

Informal programs do not require admission into the program but are differentiated from normal support services in that they have a program name and dedicated staff (e.g., Appalachian State's Jumpstart Program).

Transfer Student Support Services

Any specific services provided to transfer students, which may include transfer advisors, a transfer student office with dedicated staff, etc.

III. Process for Agreement and Partnership Data Collection

Initially, UNCGA's Office of Transfer Articulation asked the UNC institutions to provide data on their agreements, partnerships, and programs which included all of the following information:

- (1) A description of the agreement or partnership;
- (2) The number of years it has been in existence;
- (3) The number of participants by year; and
- (4) An analysis of student outcomes after a transfer under the agreement or partnership.

The campuses were provided a template to complete, a copy of the Senate Bill 744, and a copy of the transfer definitions. The campuses provided information on their agreements, partnerships, and programs. The Office of Transfer Articulation compiled the institution data into one system document which was then shared with NCCCS in November 2014.

NCCCS submitted the data, organized by community college and academic program, to each individual community college for review in December 2014 and asked colleges to indicate whether agreements are active, discontinued, or ending in the near future. Upon receipt of verified data from community colleges, NCCCS and UNCGA compared university and community college data to develop a complete listing of active bilateral agreements and the participating institutions as of January 2014 as shown in Appendices I and II.

IV. Recommendations

This study provides evidence of the following:

- All of our constituent institutions are engaged in successful local collaborations.
- A process is needed to ensure accurate system (UNCGA and NCCCS) knowledge of agreements.

- A process is needed to ensure that system (UNCGA and/or NCCCS) changes which can impact local agreements are communicated in a timely manner to prevent unintended barriers to student credential completion.
- Successful local/regional agreements and partnerships should be evaluated and communicated for possible replication among other constituent institutions.

References

Anderson, G.M., Alfonso, M., and Sun, J.C. (2006) Effectiveness of statewide articulation agreements on the probability of transfer: A preliminary policy analysis. *The Review of Higher Education* 29(3): 261-291.

Appendix I
Transfer Programs on UNC Campuses

UNC Campus	Program Name	Description of Program	Date of First Cohort Enrolled	# of Participants per year	Outcomes (if available)
WSSU	Dual Admission with Forsyth	Early academic advising coordinated with Forsyth Tech to ensure smooth transfer of community college course credits.	Fall 2011	33	Total enrollment as of 10/7/14: 32, Total graduates as of May 2014: 7, Total transfer in Fall 2014: 3 students
UNCW	UNCW's Onslow Extension Site	Partnership with Coastal Carolina Community College students in Onslow County have the opportunity to earn undergraduate degrees in five disciplines: Criminology; Elementary Education; Teacher Licensure Elementary Education (for students who already hold a Bachelor's degree); Business Administration; Bachelor of Social Work; Clinical Research	Summer 1995	300-350	362 students earned baccalaureate degrees over last three years.
UNCW	University College – UC Transition Program	Guides exploratory transfer students entering UNCW.	2007	125-150	Approximately 125-150 new transfers are assigned to UC annually for advising prior to declaration of major.
NCSU	Living Learning Community	Designed to help second year and transfer students become more involved on campus.			
NCSU	STEAM	An alternative admissions pathway for North Carolina students from rural counties pursuing an agriculturally-related major at NC State. The STEAM program is by invitation only. STEAM students who complete all requirements of the program are guaranteed admission into an agriculture major at NC State for their sophomore year. Students take their first year of coursework at a NC Community College.	Fall 2015 or Fall 2016.		
NCSU	CONNECT	Increases access to students interested in Forestry and Environmental Resources degree programs. Students participate by invitation and complete the first year at any regionally accredited institution. Upon fulfillment of CONNECT requirements, admission is granted to the Department of Forestry and Environmental Resources.			
NCSU	Community College Transfer Advisor Workshops	Yearly "Transfer Advisor Workshops" for NC Community College System Transfer Advisors.			
UNC-CH	C-Step Community College Partners: Sandhills CC, Durham Tech CC, Alamance CC, Cape Fear CC, Carteret CC, Central Carolina CC, Craven CC, Fayetteville Tech CC, Wake Tech CC	Funded by the Jack Kent Cooke Foundation, Carolina Student Transfer Excellence Program enables more community-college students to transfer to and graduate from Carolina. Students are guaranteed admission to Carolina upon successful completion of C-STEP.	2006	From 6 students in 2006 to 85 students in 2015; 30 students enrolled for 2016.	Graduation rate of 80 percent and with an average cumulative UNC GPA of 3.0.
ECU	Transfer Student Success Conference	Addresses the experiences of transfer students focusing on seamless transition.		28 institutions (community colleges, independent colleges, and universities, both in and out of state) attended 2014 meeting.	2012 Conference - 190 participants; 2014 conference - 176 participants.
UNCC	Passport Program	Focused, joint academic advising for a select group of Central Piedmont Community College (CPCC) students not accepted to UNC Charlotte but wish to transfer.	2010	115	Higher average transfer GPA than the general transfer population.
FSU	The Links, Incorporated HBCU-Community College Initiative	A collaborative model to increase the number of community college students who graduate from HBCUs, particularly between Fayetteville State University and Fayetteville Technical Community College.	2012- 2013 FTCC to FSU Cohort	2012 - 146 students; 2013 - 105 students; 2014 - 106 students	11 students have matriculated to FSU from FTCC.
NCCU	Eagle Connect Program	The Eagle Connect Program is a two-year residential program offered jointly by NCCU and Durham Tech. Designed for a select group of freshmen, the Eagle Connect Program is an academic transfer program available by invitation only. The Eagle Connect Program includes targeted academic advising, student support services, and a student life component, all of which are designed to help students succeed in meeting academic requirements for transferring to NCCU. The successful collaboration between NCCU and Durham Tech allows students to make progress in their intended major during their freshman and sophomore years while preparing for fall admission to and enrollment at NCCU beginning in their junior year.	August 2014	25	

Appendix II

NCCCS & UNC Bilateral Agreements

Program	UNC	NCCCS
Accounting (AAS - Accounting to Business Management - Management Concentration)	4	13
AGE for Army Special Operations Forces	2	2
Agricultural (Biosystems Engineering and Economics)	1	3
Airforce ROTC	1	1
Animal Science	2	5
Applied Sciences in Biology (Dual Enrollment)	1	1
Aquaculture Technology Articulation Agreement	1	2
Archeology Articulation	1	1
Architectural Engineering	5	6
Architectural Technology	1	1
Art (AFA)	1	1
Automotive Systems	1	2
Biology (2 Plus Program)	2	17
Biomufacturing Research Institute and Technology Enterprise (BRITE)	1	1
Biopharmaceutical Technology	2	1
Bioprocess Technology	1	1
Biotechnology (AAS, Concentration)	5	9
Birth through Kindergarten (Dual Degree - Teaching)	7	18
BSBA (Accounting Administration and Law, Computer Information Systems)	1	2
Business Administration (Bryan School of Business & Economics 2+ Program, Administration & Law, Management, Marketing, Education-Administrative Systems, Education-Teaching)	9	44
Chemical Engineering	1	3
Child Development	1	1
Civil Engineering	2	4
College of Management (Study Track)	1	1
Community Health Education	1	1
Computer Information Systems	3	3
Computer Science	2	6
Construction Management	2	2
Criminal Justice Technology (AAS, Pre-Major, Technology, Dual Enrollment Agreement BS)	8	34
Culinary Technology	1	1
Dance	1	1
Dental Hygiene	2	4
Disaster and Emergency Management	1	1
Drama to Bachelors in Fine Arts and Bachelor of Art in Speech and Theater Arts	1	1
Early Childhood Administration (AAS)	1	1
Early Childhood Education (AAS)	6	38

Program	UNC	NCCCS
Early Childhood Education (AAS)	6	38
Early Childhood Technology	1	1
Education - Elementary (Dual Degree, Teacher Preparation Partnership)	6	15
Education - Middle Grades (Dual Degree, Math Concentration/Science Specialization)	3	11
Education, School of (2+ Program)	2	40
Electrical Engineering	2	5
Electronics Technology	3	8
Emergency Management - Homeland Security Concentration	1	1
Emergency Medical Care	1	1
Emergency Medical Science	1	1
Emergency Preparedness Technology	1	1
Engineering (2+2 Program, Technology, Minor in Computer & Information Technology, Minor in Mechanical & Automation)	4	35
Entrepreneurship	1	1
Environmental Technology	2	1
Fermentation Sciences	1	2
Finance	1	1
Fire Protection Technology	4	3
Fire Science	3	6
Forest Management & Fisheries, Wildlife Conservation	1	2
Global Logistics Technology	1	2
Graphic Arts and Imaging Technology	1	1
Graphic Communication Systems	1	1
Greater Greensboro Consortium	2	1
Health and Fitness Science	2	3
Health Promotions (Online)	1	1
Health, Physical Education and Recreation (Recreation Administration, Teacher Preparation Program)	1	3
Healthcare Management Technology	1	1
Honors Program	2	5
Horticulture	2	12
Hospitality and Tourism Management	2	3
Human Development and Family Studies	2	40
Human Services Technology	3	5
Industrial Engineering	2	4
Industrial Technology (Minor in Computer and Electronics)	2	5
Information Systems Security	2	2
Interior Architecture (2+ Program)	1	9
Interior Design	1	1
International Honors	1	1
Laboratory Animal Science	1	2
Landscape Architecture	1	3

Program	UNC	NCCCS
Landscape Horticulture Design	1	1
Leadership in the Public Sector	1	1
Manufacturing Systems	1	3
Marine Environmental Science	1	3
Mechanical Drafting	1	1
Mechanical Engineering	2	4
Medical Assisting	1	2
Medical Laboratory Technology	1	1
Medical Sonography	1	1
Motion Picture/Television Production	1	1
Networking Technology	1	2
Neurodiagnostic and Sleep Sciences	1	30
New Media	1	2
Nuclear Medicine Technology	1	1
Nursing (Associates Degree, RN-BSN)	7	13
Nutrition Dietetics	1	1
Office Systems Technology/Office Administration	1	1
Parks and Recreation Management	1	1
Pharmaceutical Science (Concentration in Biology, Concentration in Clinical Science)	1	3
Physical Therapist Assistant	1	1
Pre-Aviation Science	1	4
Public Health Education (2+ Program)	2	41
Radiation Therapy	2	1
Radiologic Science	2	3
Real Estate	1	1
Respiratory Therapy	2	31
Science	1	1
SECU Partnership East	1	1
Social Work (2+ Program)	3	20
Surgical Technology	1	1
Virtual Regional Campus	1	2

Appendix D: UNC Policy 700.1.1, Minimum Requirements for First-time Undergraduate Admissions Minimum Course Requirements

In addition to the requirement that students should hold a high school diploma or its equivalent, the University of North Carolina Board of Governors has, since 1988, established minimum course requirements for undergraduate admission, including a fourth unit of mathematics. These requirements are summarized below.

Six course units in language, including:

four units in English emphasizing grammar, composition, and literature, and two units of a language other than English.

Four course units of mathematics, in any of the following combinations:

common core I, II, III

algebra I and II, geometry, and one unit beyond algebra II,

algebra I and II, and two units beyond algebra II, or

integrated math I, II, and III, and one unit beyond integrated math III.

(The fourth unit of math affects applicants to all institutions except the North Carolina School of the Arts.) It is recommended that prospective students take a mathematics course unit in the twelfth grade.

Three course units in science, including:

at least one unit in a life or biological science (for example, biology),

at least one unit in physical science (for example, physical science,

chemistry, physics), and

at least one laboratory course.

Two course units in social studies, including one unit in U.S. history, but an applicant who does not have the unit in U.S. history may be admitted on the condition that at least three semester hours in that subject will be passed by the end of the sophomore year.

I. Articulation with Graduation Requirements in the North Carolina Public High Schools

Following the board's change in minimum course requirements, the North Carolina State Board of Education revised the requirements for high school graduation by offering four courses of study: (1) career; (2) college tech prep; (3) college prep; and (4) occupational. These requirements are summarized below. Option 3 tracks the UNC minimum course requirements closely.

NC Course of Study Graduation Requirements				
Content Area	CAREER Course of Study Requirements	COLLEGE TECH PREP Course of Study Requirements	COLLEGE PREP Course of Study (UNC 4-yr. College) Requirements	OCCUPATIONAL Course of Study
English I, II, III, IV	4 credits I, II, III, IV	4 credits I, II, III, IV	4 credits I, II, III, IV	This course of study shall be made available for certain students with disabilities who have an IEP, beginning with first time ninth graders in 2000-01. Curriculum content requirements will be presented to the State Board of Education by May 2000.
Mathematics	3 credits Including Algebra I	3 credits Alg. I, Geometry, Alg. II or Alg. I, Technical Math I & II or Integrated Mathematics I, II & III	3 credits Alg. I, Alg. II, Geometry (or higher level math course for which Alg. II is prerequisite) (Recommended one course unit in 12th grade Integrated Mathematics I, II & III)	
Science	3 credits a physical science course Biology earth/env. science	3 credits a physical science course related to career pathway (CP) Biology earth/env. science	3 credits a physical science course a life or biological course (Biology) earth/env. science	
Social Studies	3 credits Govt./Econ. (ELPS) US History World Studies	3 credits Govt./Econ. (ELPS) US History World Studies	3 credits Govt./Econ. (ELPS) US History World Studies (UNC admission policy requires 2 courses to meet minimum admission requirements US History and (1 elective)	

Second Language	Not Required	Not Required	Not Required Recommended at least two (2) course units in one second language with one course unit taken in 12 th grade	
Computer Skills	A specific course is not required but students must demonstrate proficiency through state testing (starting with the graduating class of 2001)	A specific course is not required but students must demonstrate proficiency through state testing (starting with the graduating class of 2001)	A specific course is not required but students must demonstrate proficiency through state testing (starting with the graduating class of 2001)	
Health & Physical Ed.	1 credit Health/Phys. Ed.	1 credit Health/Phys. Ed.	1 credit Health/Phys. Ed.	
Career/Technical	4 units of credits Select courses appropriate for career pathway to include a second level (advanced) course	4 units of credits Select courses appropriate for career pathway to include a second level (advanced) course	Not required	
Arts Ed. (Visual Arts, Dance, Music, Theatre Arts)	Not required (local decision)	Not required (local decision)	Not required (local decision)	
Electives or other requirements	2 Elective Credits and other credits designated by the LEA Proficiency on exit exam	2 Elective Credits and other credits designated by the LEA Proficiency on exit exam	6 Elective Credits and other credits designated by the LEA Proficiency on exit exam	
Total	Depends on local requirements	Depends on local requirements	Depends on local requirements	

II. Minimum Admissions Requirements (MAR)

All applicants for first-time admission must meet minimum high school GPA and SAT/ACT scores. The minimum SAT (mathematics and critical reading) required for admissions is 800 or a composite ACT score of 17. The minimum high school GPA for first-time undergraduates is 2.5 (weighted).

III. Chancellor's Exceptions

The maximum number of chancellor's exceptions is limited to one percent (1%) of the total number of applicants accepted as first-time undergraduates each year. A chancellor's exception may be applied to the SAT/ACT minimum requirement and/or the HSGPA minimum requirement.

IV. Other Admissions Requirements

All applicants for admission to any campus, except those exempted by current campus and/or UNC policies and regulations, must submit a standardized test score. For additional information on admissions see 700.1.1.1 [R], 700.1.1.2 [R], and 700.7.1 [R].

V. Notification of Stakeholders and Educational Policymakers

The president is directed to develop plans and further recommendations to inform key stakeholders and education policymakers of the changes in requirements. The president may establish regulations to implement this policy.

Appendix E: Technical Report

This appendix chronicles the process for the analysis presented in the body of the report. The primary driver of this analysis was to investigate the impact of starting at a community college on baccalaureate (BA) degree attainment. Although there are peer-reviewed published studies on this topic (Alfonso, 2006; Brand, Pfeffer, & Goldrick-Rab, 2014; Dietrick & Lichtenberger, 2015; Doyle, 2009; Leigh & Gill, 2003; Long & Kurlaender, 2009; Melguizo & Dowd, 2009; Melguizo, Kienzl, & Alfonso, 2011; Monaghan & Attewell, 2015; Reynolds, 2012; Sandy, Gonzalez, & Hilmer, 2006), HB 97 charged us with investigating this question. Thus, we used previous peer-reviewed published work as a guide in our analytic process.

To further strengthen our process, as well as the final product, we engaged an outside research organization, Research Triangle Institute International (RTI), to serve as a consultant on the analysis. Three RTI employees (1 former UNC-GA employee, 1 former UNC-GA graduate student worker, and an individual unaffiliated with UNC-GA) were assigned to work with us on this project. RTI employees did not analyze data; rather they served as advisors, reviewers, and provocateurs of our work. We consulted with them via phone and email as needed and had 5 in-person meetings. The content of these meetings consisted of us presenting work to date, answering their inquiries, asking for recommendations, and general troubleshooting. We wish to thank RTI for their services and feel that this was a productive relationship that led to a stronger final product.

The remainder of the technical appendix is structured in the following sections:

- **Data** – Describes the process for obtaining the necessary data and their respective sources.
- **Merging and Variable Creation** – Describes the processes for merging the distinct datasets into one useable dataset and for creating new variables required for the analysis.
- **Narrowing the Sample** – Details how we narrowed the universe of students to our analytic sample of interest.
- **Propensity Score Analysis** – Outlines our chosen methodology, propensity score analysis, and details how the use of this method trimmed our analytic sample further. We also present descriptive results of our final, trimmed analytic sample.
- **Results** – Presents the full results from the propensity score analysis on our main outcome of interest, six year BA degree attainment. In addition, we also present results for outcomes related to student debt.
- **Alternative Model Specifications** – We provide alternative model specifications and explain why these model specifications were not possible given the data limitations.
- **Limitations** – We conclude by noting the limitations of our analysis.

Data

This analysis combined student-level data from the following 6 sources: UNC-General Administration (UNC-GA), Department of Public Instruction (DPI), National Student Clearinghouse (NSC), SAT, State Education Assistance Authority (SEAA), and North Carolina Community College System (NCCCS). Our analysis focuses on students who began their postsecondary education in the fall of 2009. Focusing on this cohort allowed us to follow students for 6 years, a standard time of 150% of normal time to complete a BA. Further, we examined a 6 year graduation rate for two additional reasons. First, the NCGAP legislation specifically refers to the 6 year graduation rate. Second, the necessary data from DPI was unavailable prior to 2008-09, precluding us from examining earlier cohorts of students. Data from DPI was received in three files for the 2008-09 cohort. We received a file comprised of high school graduates in the 2008-09 academic year that included basic demographic information such as gender and age, as well as weighted high school grade point average. Additionally, we received course level data for the academic years 2005-06, 2006-07, 2007-08, and 2008-09. This allowed us to examine a student's entire high school transcript for students who were continuously enrolled in a NC public high school over those 4 years. We then received students' SAT scores for calendar years 2008 and 2009 in two files.

We also retrieved publically available data from DPI's website. These school level variables for the 2008-09 academic year included items such as the racial makeup of a high school, the percentage of seniors indicating their intention to enroll in a 4-year or 2-year institution after high school graduation, and the percentage of all students eligible for free/reduced price lunch.

The data on students' activities in postsecondary education came primarily from UNC-GA and NCCCS. These student-level records included measures of enrollment, credits attempted and earned, and Pell grant status. Institutional level variables included the racial makeup and size of specific institutions. We also created a variable for the distance of each NCCCS institution to the nearest UNC institution. This was done using Google Maps. Since students have other postsecondary options besides the NCCCS or UNC system, we also gathered enrollment and graduation data from the NSC, which aggregates records from over 3,600 colleges and universities that enroll 98% of all students in public and private US higher education (NSC, 2016). Finally, we obtained data on students' borrowing to fund postsecondary education from the SEAA. This information is limited to federal Title IV loans.

Merging and Variable Creation

The next step was to merge these distinct files into one useable dataset. Note that this section describes the process we actually followed in merging the data; driving much of this sequencing were the time limitations and timing of the receipt of the data files. Additionally, we were successful in requesting and receiving additional data as the project evolved. It is also worth noting that there is not a single, unique identifier across all of the datasets used in the analysis;

therefore, we merged on what identifying information was common between any two individual datasets.

We began with the demographic information file from DPI. We merged these approximately 90,000 students to the SAT file based on a student's high school CEEB code, date of birth, and individual name as there was no common id among the two files. Of the 45,459 records in the SAT file, we were able to successfully match approximately 87%, or 39,564, to a DPI record.³⁷ If a student had multiple SAT scores, we used the highest score available. We then merged this with the UNC enrollment data based on student's UID.³⁸ Next, we merged with NCCCS data, also using a student's UID. We then merged this to the SEAA debt data based on a student's SSN. UNC-GA has a standing contractual relationship through which we regularly update our records based on information from the NSC. For this project, we relied on this information from a previous NSC record match. For the students who began at an NCCCS institution, the NCCCS contracted with the NSC to obtain follow-up data.³⁹

We then merged this dataset with the transcript level DPI file based on a crosswalk between the student's UID and the DPI ID variable. We added the school level variables to this dataset by matching on the Local Education Association (LEA) number. This allowed us to access publically available information from DPI's website. To construct the variable of whether a NCCCS institution was within 25 miles of any UNC institution, we manually mapped each of the 58 NCCCS institutions and the 16 UNC institutions via Google Maps.

Our combined dataset had 218,268 unique individuals including all high school students who graduated in the spring of 2009 and all students who first enrolled in a UNC or NCCCS institution in fall of 2009.⁴⁰ Note that this number is the number of students that had a record in one of the aforementioned datasets, but not necessarily all of the datasets. Within this dataset, there was duplicative information. For example, a student's gender exists in DPI, UNC, and NCCCS records and can differ. To address this we established a hierarchical set of rules. In general we preferenced the DPI data since all students had to have a DPI record to be included in the analysis. If needed, we next relied on information from that student's first sector of postsecondary enrollment - UNC or NCCCS.

Many of the variables included in the analysis were present when we received the data, e.g. gender and whether a student was enrolled in a particular semester. However, we derived some variables from the data. Below is a list of the variables we created that were used in the analysis:

³⁷ NCGAP 09 Merge File, lines 23-117

³⁸ Data from DPI, NCCCS, and UNC were matched based on the North Carolina P-20W system unique identifier (UID), which was developed by eScholar from the DPI identifier previously referred to as the NCWISE ID. For more on that developing longitudinal data system, see <http://www.dpi.state.nc.us/data/ncp-20w/>. For details about the eScholar UID see <http://www.dpi.state.nc.us/docs/cedars/uniqueid/student/training/overview/pre-training.pdf>

³⁹ Unfortunately, student record level data of those students who began at a NCCCS institution could not be shared with UNC-GA. Thus, we provide aggregate descriptive statistics only.

⁴⁰ NCGAP 09 Full Dataset

- If a student took a math course above Algebra II in high school (1=yes, 0=no) – derived from the DPI transcript file.
- If a student received a Pell grant in either his/her first or second year in college (1=yes, 0=no) – derived from the NCCCS and/or UNC-GA files.
- If a student was enrolled full time in his/her first semester (attempted 12 or more credits) (1=yes, 0=no) – derived from either the NCCCS or UNC-GA files.
- Successful credits (credits earned / attempted) (%) – combines credits from UNC and NCCCS for transfer students; derived from the NCCCS and UNC-GA files.
- Debt per semester enrolled (total Title IV debt balance / # of semesters enrolled) (\$) – combines debt from time at UNC and NCCCS for transfer students; derived from the NCCCS, UNC-GA, and SEAA files.
- Percent of nonwhite students at initial institution of enrollment (%) – derived from the NCCCS and UNC-GA files.
- Size of initial institution of enrollment (1=first quartile, 2=second quartile, 3=third quartile, 4=fourth quartile) – calculated separately for UNC and NCCCS institutions; derived from the NCCCS and UNC-GA files.
- Continuous enrollment for first fall, first spring, and second fall (fall to fall persistence measure) (1=yes, 0=no) – combines credits from UNC and NCCCS for transfer students; derived from the NCCCS and UNC-GA files.

Narrowing the Sample

Our dataset began with 218,268 unique individuals. This dataset encompassed all 2008-2009 DPI graduates, all Fall 2009 UNC applicants and enrollees, and all Fall 2009 NCCCS enrollees. This section presents the order in which we eliminated students from our dataset. For each step we give the number dropped and the number remaining.

A major hurdle we had to overcome when attempting an analysis like this is to infer intent of those students who began at a NCCCS institution. By intent, we mean intent to earn a Bachelor's degree. This is not an issue for those students who began at a UNC as they applied, were accepted, and enrolled in an institution whose main function is to confer BA degrees. However, intent is unclear for those students who began at a NCCCS institution. For example, if we assumed that all students who started at a NCCCS institution intended to earn a BA degree, we would *overstate* the effect of starting at a community college because not all NCCCS students intend to earn a BA. On the other hand, if we include only those NCCCS starters who transferred to a UNC, we would *understate* the difference as there are many students who initially intended to earn a BA but were unsuccessful and did not transfer. We operationalized intent by only including students who started at a NCCCS institution and applied to a UNC institution when they were a senior in high school. These students, we argue, were seriously considering matriculating at a UNC institution as they took the time and effort to both take the SAT and apply to UNC. Note that we considered operationalizing intent more generally by including all

NCCCS students who took the SAT – a measure used in previous peer-reviewed studies. However, we wanted to be conservative in our estimates and removed those students that did not apply to a UNC institution (dropped 117,523 individuals and 100,745 remain).^{41,42}

We then dropped students from the sample if their high school GPA was outside the range of interest, 2.5-2.7 (inclusive).⁴³ Note that the number of students remaining might seem low, but we are relying on DPI for the high school GPA; thus we do not have any data on out of state students, including international students, or private high school students in NC. We expand on this point in our limitations section below (dropped 99,185 individuals and 1,560 remain).⁴⁴

We next dropped students that attended special high schools such as Early College High Schools as these students earn college credit in high school and perhaps have a special relationship with the NCCCS institution that operates the early high school (dropped 34 and 1,526 remain).⁴⁵

We then dropped students who co-enrolled in both a NCCCS and UNC institution in that first fall of 2009. We had to drop these individuals because it is impossible to assign them to either UNC or NCCCS (7 dropped and 1,519 remain).⁴⁶

We next eliminated students who applied to a UNC institution but did not enroll at a UNC or NCCCS institution (dropped 400 and 1,119 remain).⁴⁷

We then eliminated NCCCS students who did not have a SAT score. Since a SAT score is mandatory for a UNC application, this did not affect UNC students (dropped 34 and 1,085 remain).⁴⁸

The result was a sample of 1,085 students who graduated from a NC public high school in spring of 2009, applied to a minimum of 1 UNC institution, and enrolled in either a NCCCS or UNC institution in the fall of 2009. This sample included 797 students who started at a UNC institution and 288 students who started at a NCCCS institution.⁴⁹ Descriptive statistics of these students are presented in Table 2 below.

Propensity Score Analysis

As mentioned above there is an inherent issue when attempting to answer the question of whether where one starts college influences outcomes. To provide a true causal estimate of that

⁴¹ This sample included an additional 234 students who began at a NCCCS institution. Full results using this larger population of students are consistent with our findings and are available upon request.

⁴² NCGAP 09 Analytical File, line 29

⁴³ We ran additional models adjusting and lifting the GPA range. Note that the results are consistent with our main findings in both direction and magnitude. Results of these models are available upon request.

⁴⁴ NCGAP 09 Analytical File, line 32

⁴⁵ NCGAP 09 Analytical File, line 37

⁴⁶ NCGAP 09 Analytical File, line 40

⁴⁷ NCGAP 09 Analytical File, line 43

⁴⁸ NCGAP 09 Analytical File, line 46

⁴⁹ NCGAP 09 Analytical File, line 47

effect, we would have to randomly assign students to begin at either a NCCCS or UNC institution and then monitor those students over time. This is not practical in this situation as students have choices about where to attend. Furthermore, a study that was able to randomly assign students would be longitudinal in nature and would take a minimum of 6 years before one could assess the outcome. Since random assignment is not ethical or feasible, we need to statistically control for the fact that different students start college in different sectors and create a sample that best approximates this random assignment. Rather than using a traditional approach such as logistic regression, after examining the peer-review literature and discussing it with advisors at RTI, we agreed that analysis using a technique from the family of estimators known as Propensity Score Analysis (PSA) was the most rigorous and appropriate method to answer our question given the nature of our data and question. That is, PSA allows us to reduce the bias in non-experimental estimates by modeling the selection process (Shadish, Cook, & Campbell, 2002).

PSA helps us address the bias that is inherent in a student's decision to begin at a NCCCS or UNC institution. As mentioned above, we only included NCCCS students who applied to a minimum of 1 UNC institution. This step by a student illustrates that s/he was seriously considering attendance at a UNC institution and took action to pursue attendance. However, there might be other factors that drove a student who did apply to UNC to enroll at a NCCCS institution. These factors could include financial constraints, personal preferences, academic confidence, or any other number of unobservable factors. To address this selection bias using PSA, we employed four steps prior to estimating the full results: 1) created the propensity score, 2) checked for common support, 3) weighted the sample using inverse probability weighting, and 4) checked for balance. We detail each of the four below.

Create the Propensity Score

First, using 15 characteristics measured prior to college entry, we estimate each student's propensity score using a logistic regression with the outcome being enrolled in NCCCS or not. Those 15 characteristics can be found in Table 2 below. The propensity score is a "single number that indicated the extent to which one person is similar to another along a collection of observed characteristics" (Agodini & Dynarski, 2004). The following equation was used to model the relationship between our predictors and graduation, from which we generate each student's propensity score:

$$NCCCS_i = \beta_0 + \beta_1 X_i,$$

where $NCCCS_i$ is an individual's propensity to be assigned to the NCCCS (a number between 0 and 1), β_0 is the intercept, X_i is a vector of covariates, and β_1 is a parameter estimate. Each student in the sample had a predicted propensity score of p_i , where

$$p_i = \Pr(T_I = 1 \mid X_i),$$

where p_i is each student's propensity to begin higher education at a NCCCS institution after controlling for other relevant covariates, X_i .

Check for Common Support

We used the propensity score to check for a region of common support in two ways, both recommended by Caliendo & Kopeinig (2008). First, we visually inspected the propensity score distribution to ensure there was overlap (see Figure E-1). Second, we utilized the “minima and maxima criterion”. This method omits all students whose propensity score is smaller than the minimum and larger than the maximum in the opposite group. For example, the range of propensity scores in our treatment sample was [.039, .882] and in our control sample was [.021, .826].⁵⁰ We omitted all students with a propensity score below .039 and above .826. This process helps to ensure that there is an acceptable match for all students left in the analysis. The lower bound restriction omitted 11⁵¹ individuals and the upper bound restriction omitted 103.⁵² The upper bound dropped considerably more individuals due to the fact that students with a missing propensity score were captured by the upper bound. Of the 103 omitted by the upper bound restriction, 94⁵³ students had a missing propensity score because they did not have data for all of the variables used to estimate the score. Thus, only 11 students who were omitted by the upper bound restriction had a valid propensity score. This now drops the sample to 971 individuals, 701 that started at UNC and 270 that started at NCCCS, 72.2% and 27.8% respectively.⁵⁴

⁵⁰ NCGAP 09 Analytical File, line 129

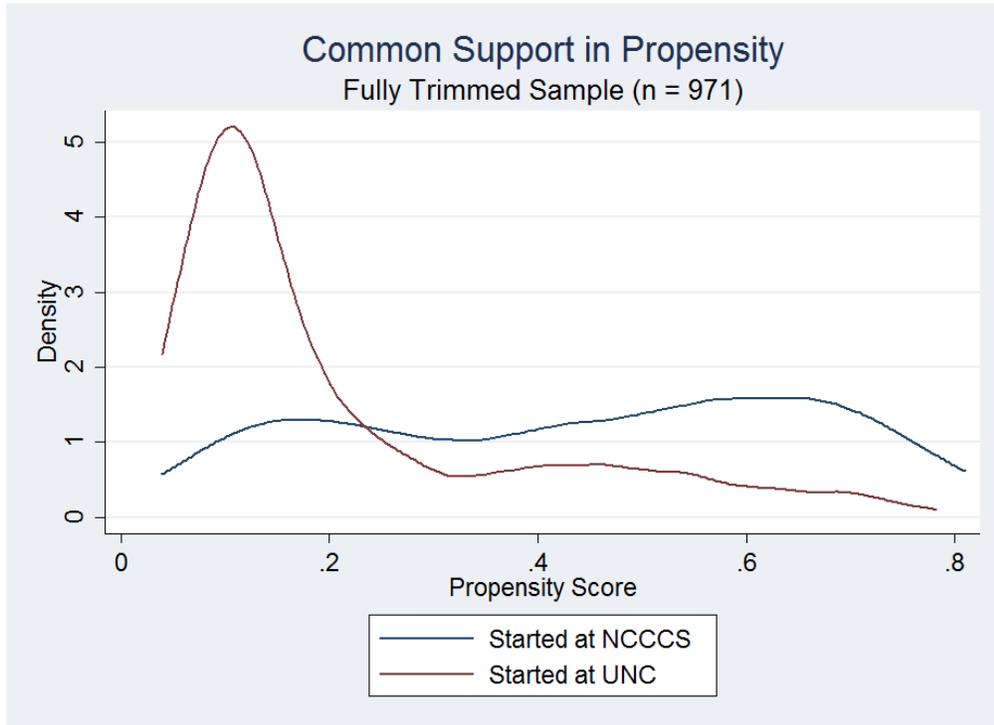
⁵¹ NCGAP 09 Analytical File, line 130

⁵² NCGAP 09 Analytical File, line 131

⁵³ NCGAP 09 Analytical File, line 119

⁵⁴ NCGAP 09 Analytical File, line 132

Figure E-1. Post-trim Common Support⁵⁵



Weighting the Sample

To address the potential of selection bias based on the characteristic of the sample, we used a weighting approach based on propensity scores rather than a strict matching method. Since we seek to understand the effect of the treatment condition on those who are treated, we use the following weighting formula to estimate the average effect of treatment on the treated (ATT) (Guo & Fraser, 2015). For students in the control group, $weight = p / (1 - p)$, where p is the propensity score for each individual; for students in the treated group, $weight = 1$. We apply the inverse propensity weights to the linear probability model to correct for selection bias in the analytical sample.

Check for Balance

To determine if the sample was properly balanced, we compared the mean values of the background variables between the control (started at UNC) and treated (started at NCCCS) groups with and without applying the inverse propensity weights. We also calculated a standardized bias for each, which is a measure of the difference between the two groups. A standardized bias of 0% indicates that there is no imbalance present between the two groups.

⁵⁵ NCGAP 09 Analytical File, lines 134-138

Prior to weighting, the average absolute standardized bias was 19.9%.⁵⁶ After applying the inverse propensity weights, this average drops to 2.2%,⁵⁷ indicating that balance is still not perfect but is considerably improved over the unweighted sample. Table E-1 summarizes the balance across all variables included in the propensity estimation.

Table E-1. Sample Balance⁵⁸

	Unweighted			Weighted		
	Control (mean)	Treated (mean)	St. Bias (%)	Control (mean)	Treated (mean)	St. Bias (%)
Individual Level						
Unknown, Multiple, or Other Race/Ethnicity	0.058	0.070	4.83	0.079	0.070	-3.31
Hispanic, any Race	0.024	0.052	14.44	0.060	0.052	-3.36
American Indian or Alaska Native	0.011	0.026	10.72	0.024	0.026	1.47
Asian, Hawaiian, or Pacific Islander	0.010	0.022	9.72	0.021	0.022	1.17
Black/African American	0.729	0.281	-99.95	0.274	0.281	1.72
Female	0.511	0.459	-10.29	0.455	0.459	0.93
Age	18.368	18.373	1.10	18.351	18.373	5.84
SAT Math Score	430.756	440.000	11.94	439.162	440.000	1.05
SAT Verbal Score	419.971	429.000	11.93	429.682	429.000	-0.89
Weighted High School GPA	2.599	2.600	1.29	2.603	2.600	-4.99
Took Math Beyond Algebra II in High School	0.756	0.681	-16.62	0.660	0.681	4.58
School/Graduating Class Level						
High School Free/Reduced-Price Lunch	0.433	0.356	-39.80	0.352	0.356	2.16
Graduate Intention - Senior Institution	0.499	0.505	4.50	0.507	0.505	-1.32
Graduate Intention - Comm./Tech. College	0.336	0.346	9.97	0.344	0.346	1.62
Graduate Intention - Percent Non-white	0.533	0.409	-51.57	0.404	0.409	2.01
(mean absolute standardized bias)			19.91			2.17

Results

Descriptive Statistics

Table E-2 displays the unweighted summary statistics for our sample of 971 students. It is divided into three sections. The top section displays descriptive statistics used in the propensity score generation for the entire sample as well as by sector of origin. The second section presents descriptive statistics for the additional variables that were included in the outcome regression. The bottom section displays descriptive statistics for the outcomes of interest as well as intermediate outcomes for those students who started at a NCCCS institution.

⁵⁶ Sample Descriptive Statistics Workbook, Sample Balance sheet

⁵⁷ Sample Descriptive Statistics Workbook, Sample Balance sheet

⁵⁸ Sample Descriptive Statistics Workbook, Sample Balance sheet

Students in our sample graduated high school, enrolled in college immediately in the following fall, applied to a minimum of one UNC institution, and took the SAT. By limiting the sample in these ways, it is not surprising that the average age of our sample is 18.3,⁵⁹ a traditional aged college student. There are some differences in our sample by student's sector of origin. For example, over 70% of the UNC students identify as African American compared to 30% of NCCCS students.⁶⁰ This difference is in contrast to what one would initially expect as community colleges enroll the majority of underrepresented students enrolled in higher education (AACC, 2015). However, since our sample is limited to UNC institutions, this difference is not surprising. The UNC system is comprised of 16 institutions of higher education and 6 of those are Minority Serving Institutions (MSIs) – 5 HBCUs and 1 American Indian serving institution. Our internal data shows that the 6 MSIs enroll students with lower high school GPAs compared to other UNC institutions. Thus, it is not surprising that this sample is comprised of students who are disproportionately enrolled at a MSI. As Table E-3 shows, of the UNC students, almost 86% of the students in this sample initially enrolled in 1 of the 6 MSIs.

Academically, our sample is consistent across sector of origin. For example, the weighted high school GPA of each group is 2.6,⁶¹ SAT math is approximately 430,⁶² and SAT verbal is approximately 420.⁶³ A higher percentage of students who began in the UNC system had taken a math beyond Algebra II in high school, 75% to 68%.⁶⁴ Since UNC requires four math courses as part of the minimum course requirements, this difference is not surprising. At the high school level, students who began at a UNC institution graduated from high schools in which a higher percentage of students qualified for free or reduced price lunch and had a higher percentage of non-white students. The percentage of seniors reporting their intention to attend a four-year or two-year institution after high school graduation was consistent across the two groups.

The middle section of Table E-2 presents descriptive statistics for the additional variables that were included in the outcome regression. As mentioned above, we only included variables in the construction of the propensity score that were measured prior to treatment (college entry). However, previous social science research indicates that additional variables can have an influence on student success so their inclusion in the model is warranted (Pascarella & Terenzini, 2005). Consistent with previous work, students who started at a NCCCS institution were less likely to enroll full-time in their first semester of college, 81% to 99%.⁶⁵ A much higher percentage of UNC students received a Pell grant within their first 2 years of college (71% to 41%, respectively).⁶⁶ There is a notable difference in the success of students as well. The percentage of credits attempted that a student successfully completed is higher among UNC

⁵⁹ NCGAP 09 Analytical File, lines 149-150

⁶⁰ NCGAP 09 Analytical File, line 147

⁶¹ NCGAP 09 Analytical File, lines 155-156

⁶² NCGAP 09 Analytical File, lines 151-152

⁶³ NCGAP 09 Analytical File, lines 153-154

⁶⁴ NCGAP 09 Analytical File, line 165

⁶⁵ NCGAP 09 Analytical File, line 169

⁶⁶ NCGAP 09 Analytical File, line 168

students than NCCCS students. However, do note that as we explained above, this variable was created across sectors. Thus, for NCCCS students who transferred to a UNC institution within their first year, it includes credits taken in the NCCCS and UNC systems. Although the percentage of credits completed successfully was higher for UNC origin students, the fall to fall persistence rate was similar among the two groups, approximately 65%.⁶⁷ Previous research indicates that the location of a community college in relation to a 4-year institution could be an important factor in the transfer process (Backes & Velez, 2015). Thus we included that variable in our model.

The bottom of Table E-2 also displays mean outcomes by sector of origin. As we would expect from previous research, there are notable differences in student success by sector of origin. For example, the 6-year baccalaureate graduation rate for UNC native students was approximately 36% compared to 11% for the students who began in a NCCCS institution.⁶⁸ However, this 25 percentage point difference does not account for the differences between the two types of students so this is often referred to as the “naïve estimate”. For students who began at the community college, they did acquire less debt when compared to the native UNC students. We measured debt at separation from higher education in two ways. First, we simply looked at the average amount of debt. Second, in order to not penalize students for persisting in college (and thus acquiring additional debt to fund their studies), we also examined debt per semester enrolled, a more accurate representation of student borrowing. As expected, community college students are lower on both debt measures as the tuition and total cost of attendance at a community college is lower than at a UNC institution. We also present debt figures for all students (which includes students who did not borrow) and for only those students who borrowed. Although the magnitude of the differences changes based on who is included, the fact that NCCCS students borrow less than UNC students remains consistent. For the students who began at a NCCCS institution, we also display descriptive statistics for intermediate outcomes of interest.

⁶⁷ NCGAP 09 Analytical File, line 176

⁶⁸ NCGAP 09 Analytical File, line 179

Table E-2. Descriptive Statistics⁶⁹

	All	UNC	NCCCS
Starting System (n)	971	701	270
Propensity Score Covariates			
Race/Ethnicity (%)			
Unknown, multiple, or other race/ethnicity	6.18%	5.85%	7.04%
Hispanic, any race	3.19%	2.43%	5.19%
American Indian or Alaska Native	1.54%	1.14%	2.59%
Asian, Hawaiian, or Pacific Islander	1.34%	1.00%	2.22%
Black/African American	60.45%	72.90%	28.15%
White	27.29%	16.69%	54.81%
Gender (%)			
Male	50.36%	48.93%	54.07%
Female	49.64%	51.07%	45.93%
Age (mean)	18.37	18.37	18.37
SAT-M (mean)	433.33	430.76	440.00
SAT-V (mean)	422.48	419.97	429.00
Weighted High School GPA (mean)	2.60	2.60	2.60
Free/Reduced-Price Lunch (mean)	41.18%	43.33%	35.61%
Graduate Intentions - Senior Institution (mean)	50.01%	49.92%	50.50%
Graduate Intentions - Comm./Tech. College (mean)	33.85%	33.56%	34.59%
Graduate Intentions - Percent Non-White (mean)	49.82%	53.27%	40.86%
Took Math Beyond Algebra 2 in High School (%)	73.53%	75.61%	68.15%
Regression Covariates			
Awarded Pell Within First 2 Years (%)	64.68%	71.47%	47.04%
Enrolled 12 or More Credits in First Semester (%)	94.03%	99.14%	80.74%
Percent of Attempted Credits Successful (mean)	89.25%	98.48%	65.31%
Attended NCCCS within 25 Miles of UNC (%)	NA	NA	68.15%
Enrolled Institution - Percent Non-White (mean)	70.26%	81.72%	40.51%
Enrollment Quartile (%)			
1 (smallest)	70.03%	92.44%	11.85%
2	7.21%	1.85%	21.11%
3	10.92%	4.56%	27.41%
4 (largest)	11.84%	1.14%	39.63%
Continuously Enrolled into Second Year (%)	65.19%	64.91%	65.93%

⁶⁹ Sample Descriptive Statistics Workbook, Descriptive Statistics sheet

Table E-2: Descriptive Statistics (cont.)

Outcomes of Interest			
Completed a Bachelor's Degree within 6 Years (%)	29.15%	35.95%	11.48%
Completed a Bachelor's Degree within 5 Years (%)	23.07%	29.24%	7.04%
Completed a Bachelor's Degree within 4 Years (%)	8.44%	11.27%	1.11%
Average Loan Debt per Semester (mean)	\$1,221	\$1,615	\$198
for those who borrowed (mean)	\$1,937 (n = 612)	\$2,003 (n = 565)	\$1,137 (n = 47)
Total Loan Debt at Separation (mean)	\$6,400	\$8,314	\$1,429
for those who borrowed (mean)	\$10,153 (n = 612)	\$10,315 (n = 565)	\$8,211 (n = 47)
Total Credits Attempted (mean)	89.90	93.32	81.01
Completed an AA/AS within 2 Years	NA	NA	1.11%
Completed an AA/AS within 3 Years	NA	NA	3.33%
Completed an Associate's Degree within 2 Years	NA	NA	1.11%
Completed an Associate's Degree within 3 Years	NA	NA	4.07%
Transferred from NCCCS to UNC (%)	NA	NA	25.93%

Although the descriptive data convey a compelling story, it is unclear whether the observed differences in baccalaureate degree attainment and debt at separation, are due to where a student began higher education. Table E-4 presents a series of models investigating the effect of starting at a NCCCS institution compared to a UNC institution on three outcomes of interest: bachelor's degree attainment within 6 years, total debt at separation (with and without a control for graduation), and debt per semesters enrolled. Each of these regressions uses clustered standard errors (by initial institution) and the ATT inverse propensity weights described above. Table E-5 summarizes the results on the three outcomes of interest.

Table E-3. Institutions Where UNC Students Started⁷⁰

Starting UNC (%)	N = 701	%
NCA&T	187	26.68%
NCCU	139	19.83%
UNCP	84	11.98%
WSSU	73	10.41%
FSU	64	9.13%
ECSU	55	7.85%
WCU	45	6.42%
ECU	21	3.00%
NCSU	8	1.14%
UNCC	8	1.14%
UNCG	5	0.71%
ASU	4	0.57%
UNCW	4	0.57%
UNC-CH	3	0.43%
UNCSA	1	0.14%
Started at an MSI (%)	602	85.88%

6-year BA degree Rate

We first examined 6-year baccalaureate degree completion using an ordinary least squares model of the form

$$\text{GRAD}_i = \alpha_i + \beta_1 \text{NCCCS}_i + \beta_2 X_i + \varepsilon_{1i},$$

where GRAD is whether a student earned a BA degree or not, α_i is the intercept, NCCCS is a dummy variable equal to 1 if a student initially started in the NCCCS, and β_1 is the estimate associated with beginning at the NCCCS, X_i is a vector of background controls,⁷¹ and ε_i is the error term. Table E-4 reports the coefficients for the variables included in the model. Similar to the descriptive data, the estimates suggest that compared with UNC native students, students who begin at a community college were significantly less likely earn a BA degree within 6 years. Our model estimates the negative effect of starting at a community college to be 20.5%,⁷² all else

⁷⁰ Sample Descriptive Statistics Workbook, Descriptive Statistics sheet

⁷¹ Our control variables included the following: INDIVIDUAL – race, gender, age, age squared, math SAT, verbal SAT, weighted high school GPA, math course taken above algebra 2, received Pell grant within first two years of college, full-time enrollment first semester, % credits successfully completed, debt per semester enrolled, if continuously enrolled in first three semesters; SCHOOL LEVEL - % eligible for frpl, % seniors intending to attend community college, % seniors intending to attend 4-year institution, % nonwhite; COLLEGE LEVEL - if NCCCS institution was within 25 miles of a UNC, % nonwhite, size quartile.

⁷² NCGAP 09 Analytical File, line 288

equal.⁷³ We included all of the variables from the construction of the propensity score as controls in the regression as recommended by the literature (Ho et al., 2007).

Student Debt

Total

We use a similar equation and control variables as used in the 6-year BA degree attainment to examine total student debt. Table E-4 reports the coefficients for the variables included in the model. Similar to the descriptive data, the estimates suggest that compared with UNC native students, students who begin at a community college acquire less total debt. Our model estimates the effect of debt accumulation for those who start at a community college to be \$5,872 less,⁷⁴ all else equal. When additionally controlling for graduation within 6 years, the effect estimate is \$4,558 less, all else equal. Controlling for graduation addresses the issue that a student who exits postsecondary education prior to completion accumulates less debt than he or she otherwise would have by staying enrolled simply by no longer participating. Thus, this lower debt figure does not penalize students for persisting in and graduating from postsecondary education, two outcomes that we want students to achieve.

Controls for both total debt and debt per semester enrolled include the following, **INDIVIDUAL** – race, gender, age, age squared, math SAT, verbal SAT, weighted high school gpa, math above algebra 2, pell within first two years of college, fulltime first semester, % credits successfully completed, if continuously enrolled for first three semesters; **SCHOOL LEVEL** - % frpl, % seniors intending to attend cc, % seniors intending to attend 4-year, % nonwhite among graduating seniors, if NCCCS institution was within 25 miles of a UNC, % nonwhite, size quartile.

Per Semesters Enrolled

We use a similar equation and control variables as used in the 6-year BA degree attainment to examine student debt per semesters enrolled. Table E-4 reports the coefficients for the variables included in the model. Similar to the descriptive data, the estimates suggest that compared with UNC native students, students who begin at a community college acquire less debt per semester enrolled. Our model estimates the effect of debt accumulation per semester enrolled for those who start at a community college to be \$1,282 less,⁷⁵ all else equal.

⁷³ Note that due to data sharing limitations this model does not include graduation data for institutions other than UNC institutions.

⁷⁴ NCGAP 09 Analytical File, line 290

⁷⁵ NCGAP 09 Analytical File, line 289

Table E-4. Results of Regression Models⁷⁶

	6-Year Graduation (probability)	Debt - Per Semester (\$)	Debt - Total (\$)	Debt - Total (\$)
NCCCS Student	-0.205** (0.07)	-1,281.71*** (139.53)	-5,872.17*** (720.91)	-4,558.27*** (588.20)
Awarded Pell Within First 2 Years	-0.02 (0.04)	-77.16 (79.63)	294.06 (412.94)	437.92 (386.35)
Enrolled 12 or More Credits in First Semester	0.01 (0.04)	-208.22 (155.74)	142.41 (659.86)	131.15 (437.93)
Percent of Attempted Credits Successful	0.235** (0.08)	598.88* (274.31)	3,009.49** (1045.64)	1,581.35 (907.42)
Debt Per Semester	0.00 (0.00)	-- --	-- --	-- --
Attended NCCCS Within 25 Miles of UNC	0.04 (0.05)	489.85** (137.65)	2,638.70** (724.90)	2,354.34** (667.55)
Enrolled Institution - Percent Non-White	-0.05 (0.09)	-468.45 (257.22)	-963.25 (1,344.40)	-641.09 (1,142.00)
Enrolled Institution - Quartile	-0.01 (0.03)	-131.23* (62.62)	-779.87* (313.84)	-719.55* (272.40)
Continuously Enrolled into Second Year	0.309*** (0.06)	-302.02 (168.61)	2,958.47** (981.87)	1,169.81 (722.38)
Graduation with a bachelor's degree within 6 years	-- --	-- --	-- --	5,869.92*** (635.81)
Model R ²	0.27	0.28	0.35	0.46

Notes

Propensity covariates were included in each regression but not reported here

Robust standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

⁷⁶ NCGAP Regression Results Workbook, Abbreviated Table sheet

Table E-5. Summary of Main Effects⁷⁷

Outcome	Estimated ATT	95% CI Range
Probability of Completing a Bachelor's Degree within 6 Years	-20.5%	[-34.4%, -6.7%]
Average Debt Accumulated Per Semester	-\$1,282	[-\$1,561, -\$1,003]
Total Debt Accumulated at Point of Separation	-\$5,872	[-\$7,315, -\$4,430]
Total Debt Accumulated at Point of Separation (with graduation control)	-\$4,558	[-\$5,735, -\$3,381]

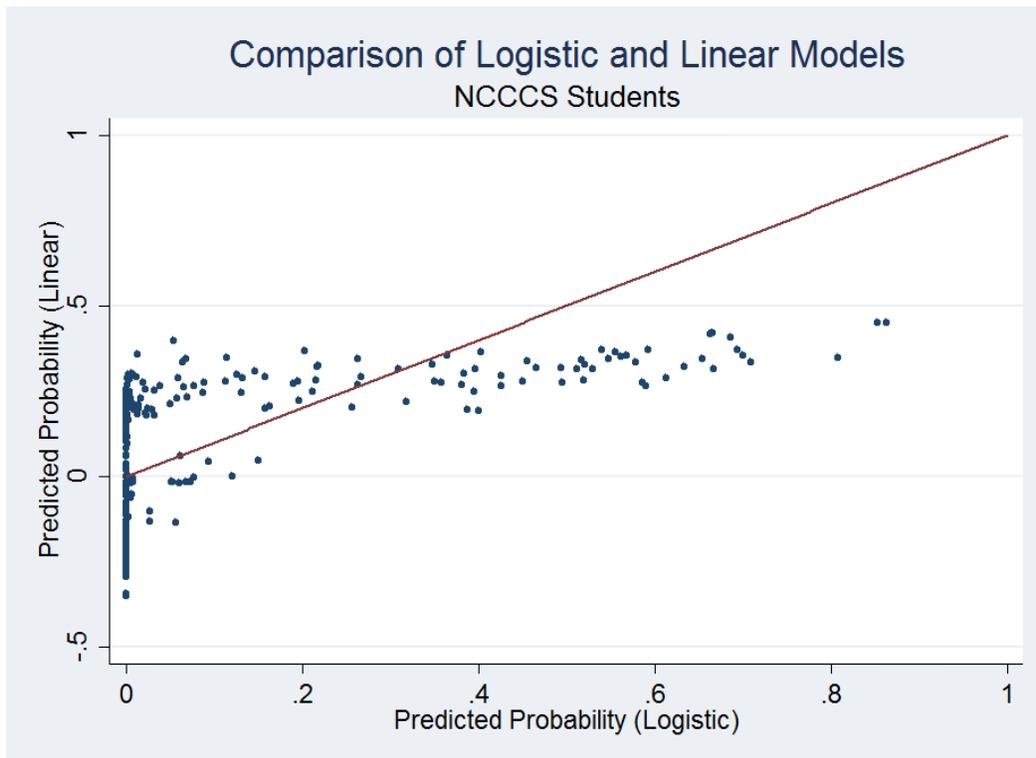
Note. Treatment is defined as initially attending a community college.

Alternative Model Specifications

We investigated modeling the main outcome, 6-year graduation rate, by using logistic regression since it is dichotomous. However, the data did not allow for this. While logistic regression is frequently used for dichotomous outcomes of interest (e.g., graduated or did not), there is a risk of “separation” which is shown in our data. Generally, separation occurs when one, or a combination of more than one, variable perfectly predicts the outcome. When this happens, that predictor, or set of predictors, is assigned an arbitrarily large value to fit the data. Our data experienced the related problem of quasi-complete separation, which is a milder form of complete separation. In this case, the logistic model can still converge and produce coefficient estimates, but they are heavily biased. This problem arises out of the fact that not enough students who began at the community college achieved the outcome of interest – graduation within 6 years. When a model is fitted with graduation as the outcome, there is not enough variation among the outcome and the set of predictors for the model to operate in an appropriate manner. This resulted in an arbitrary large value for students who began at a community college. Ideally, the outcome variable would have a 50-50 split in terms of half of the students in the sample graduated and half did not. As you move away from a 50-50 split, the risk of quasi-complete separation increases. The two graphs, Figures E-2 and E-3, visually show the clustering at a 0 predicted probability of BA graduation for those that started at the NCCCS and UNC, respectively. Notice the more even distribution for those students who began at a UNC institution.

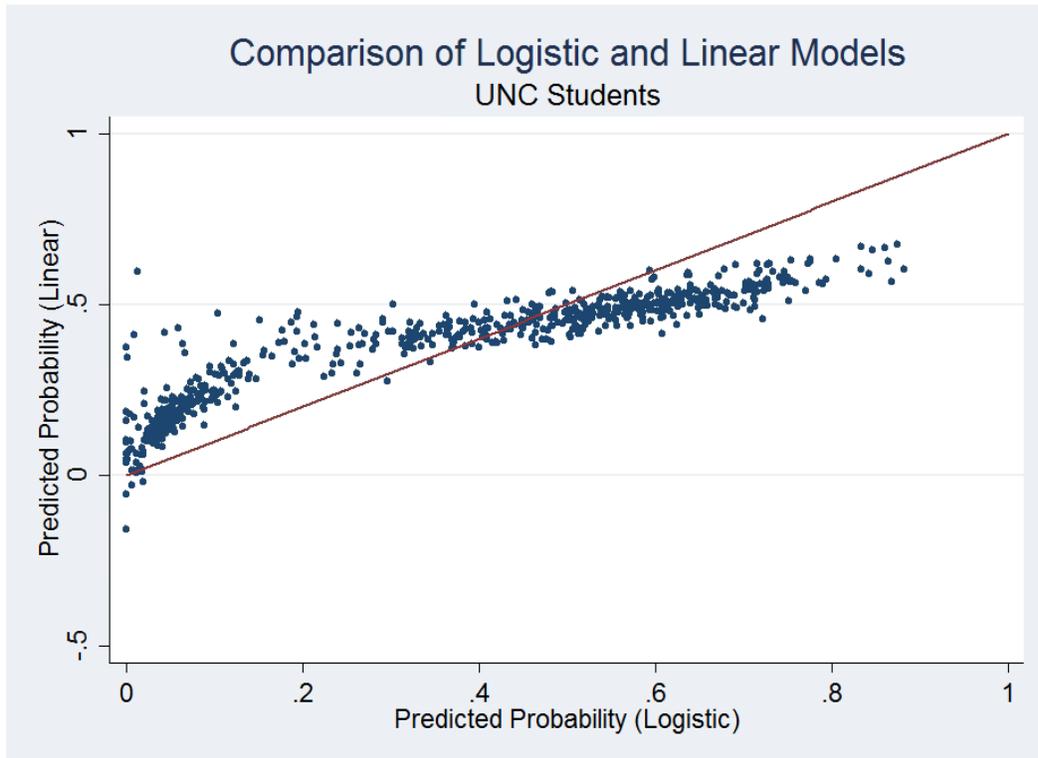
⁷⁷ NCGAP Regression Results Workbook, Summary of Main Effect sheet

Figure E-2. Predicted Probability of Graduation within 6 years for NCCCS Students⁷⁸



⁷⁸ NCGAP 09 Analytical File, lines 320-325

Figure E-3. Predicted Probability of graduation within 6 years for UNC Students⁷⁹



Limitations

Like all studies, this one has limitations. First, due to data availability, this analysis was only able to use high school students who graduated from a NC Public high school. Thus, no out of state or private in-state high school students are included in the analysis. Second, we use data from the incoming 2009 college students so we can model a six year degree completion window, which is standard for BA completion. However, there is no guarantee that the results presented here remain consistent if that time is expanded. Furthermore, we are assuming that students who would begin postsecondary education in the fall of 2017, the first year of proposed implementation of NCGAP, would be similar or that other conditions that help shape individual decisions (e.g., economy) are similar.

Although we have provided informed estimates, we are unable to predict what percentage of students offered admission to NCGAP would accept that invitation. Further, and more important for the analysis, we cannot predict how the existence of NCGAP would affect students. For example, one could make a case that the existence of a program that included academic and student supports would increase attainment and transfer rates for those who begin at a

⁷⁹ NCGAP 09 Analytical Files, lines 326-331

community college. Likewise, one could make a compelling case that a student who receives a deferred admission decision as part of NCGAP would be deflated and thus, even if s/he opted into the program, would experience more difficulties than in the program's absence.

We cannot provide true casual estimates of the effect of beginning at a community college as that is only possible through the use of random assignment. Likewise, we would like to have additional data to include in the propensity score generation and outcome models. For example, data on parents' education and income level is likely to influence students' selection into treatment and the dependent variable. We also do not address critical questions surrounding the mechanisms by which beginning at a community college affects student outcomes. Explaining how starting at a community college lowers BA degree attainment has been studied by others (e.g., Clark, 1960; Rosenbaum, Deil-Amen, & Person, 2006; Brint & Karabel, 1989).

Technical Report References

- Agodini, R. & Dynarski, S. (2004). Are experiments the only option? A look at dropout prevention programs. *Review of Economics and Statistics*, 86(1), 180-194.
- Alfonso, M. (2006). The impact of community college attendance on baccalaureate attainment. *Research in Higher Education*, 47.
- American Association of Community Colleges (AACC). (2015) Fast facts. Retrieved from <http://www.aacc.nche.edu/ABOUTCC/Pages/fastfactsfactsheet.aspx>
- Backes, B. & Velez, E. (2015). Who transfers and where do they go? Community college students in Florida. *CALDER working paper 126*. Retrieved from <http://www.caldercenter.org/sites/default/files/WP%20126.pdf>
- Brand, J., Pfeffer, F., & Goldrick-Rab, S. (2014). The community college effect revisited: The importance of attending to heterogeneity and complex counterfactuals. *Sociological Science*, 1.
- Brint, S. & Karabel, J. (1989). Community colleges and the American social order. In *The diverted dream: Community colleges and the promise of educational opportunity in America* (pp.3-19). New York: Oxford University Press.
- Caliendo, M. & Kopeinig, S. (2008). Some practical guidance for the implementation of propensity score matching. *Journal of Economic Surveys*, 22, 31-72.
- Clark, B. (1960). The “cooling-out” function in higher education. *American Journal of Sociology*, 65(6), 569-576.
- Dietrick, C. & Lichtenberger, E. (2015). Using propensity score matching to test the community college penalty assumption. *The Review of Higher Education*, 38.
- Doyle, W. (2009). The effect of community college enrollment on bachelor’s degree completion. *Economics of Education Review*, 28.
- Guo, S., & Fraser, M. W. (2014). *Propensity score analysis: Statistical methods and applications* (2nd ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Ho, D.E., Kosuke, I., King, G., & Stuart, E.A. (2007). Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference. *Political Analysis*, 15, 199-236.
- Leigh, D. & Gill, A. (2003). Do community colleges really divert students from earning bachelor’s degrees? *Economics of Education Review*, 22.
- Long, B. & Kurlaender, M. (2009). Do community colleges provide a viable pathway to a baccalaureate degree? *Educational Evaluation and Policy Analysis*, 31.
- Melguizo, T. & Dowd, A. (2009). Baccalaureate success of transfers and rising 4-year college juniors. *Teachers College Record*, 111.

- Melguizo, T. Kienzl, G. & Alfonso, M. (2011). Comparing the educational attainment of community college transfer students and four-year college rising juniors using propensity score matching methods. *The Journal of Higher Education*, 82.
- Monaghan, D. & Attewell, P. (2015). The community college route to the bachelor's degree. *Educational Evaluation and Policy Analysis*, 37.
- National Student Clearinghouse (NSC). (2015). Who we are. Retrieved from <http://www.studentclearinghouse.org/about/>
- Pascarella, E. & Terenzini, P. (2005). *How college affects students: A third decade of research*. San Francisco, CA: Jossey-Bass.
- Reynolds, C. (2012). Where to attend? Estimating the effects of beginning college at a two-year institution. *Economics of Education Review*, 31.
- Rosenbaum, J. Deil-Amen, R. & Person, A. (2006). *After admission: From college access to college success*. New York: Russell Sage Foundation.
- Sandy, J., Gonzalez, A., & Hilmer, M. (2006). Alternative paths to college completion: Effect of attending a 2-year school on the probability of completing a 4-year degree. *Economics of Education Review*, 25.
- Shadish, W., Cook, T. & Campbell, D. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. New York: Houghton Mifflin Company.

Appendix F: UNC & NCCCS Grad Rates by Institution

Table F-1. UNC 6-year graduation rate by institution

Institution	Six-year bachelor's degree completion rate (%)
Appalachian State University	66
East Carolina University	58
Elizabeth City State University	43
Fayetteville State University	31
North Carolina A & T State University	43
North Carolina Central University	43
North Carolina State University at Raleigh	71
University of North Carolina at Asheville	55
University of North Carolina at Chapel Hill	89
University of North Carolina at Charlotte	53
University of North Carolina at Greensboro	54
University of North Carolina at Pembroke	34
University of North Carolina School of the Arts	62
University of North Carolina Wilmington	69
Western Carolina University	48
Winston-Salem State University	40

Source: IPEDS Data Center: August 31, 2014 data (most recent publicly available)

Data reported are for the 2008 cohort of first-time, full-time undergraduates pursuing a bachelor's degree.

Table F-2. NCCCS Three-year graduation rate by college

Institution	Degree/certificate completion rate within three years (%)*
Alamance Community College	11
Asheville-Buncombe Technical Community College	18
Beaufort County Community College	18
Bladen Community College	12
Blue Ridge Community College	17
Brunswick Community College	24
Caldwell Community College and Technical Institute	20
Cape Fear Community College	14
Carteret Community College	16
Catawba Valley Community College	21
Central Carolina Community College	20
Central Piedmont Community College	12
Cleveland Community College	23
Coastal Carolina Community College	25
College of the Albemarle	19
Craven Community College	12
Davidson County Community College	26
Durham Technical Community College	12
Edgecombe Community College	12
Fayetteville Technical Community College	7
Forsyth Technical Community College	14
Gaston College	24
Guilford Technical Community College	10
Halifax Community College	26
Haywood Community College	20
Isothermal Community College	7
James Sprunt Community College	14
Johnston Community College	29
Lenoir Community College	12
Martin Community College	8
Mayland Community College	34
McDowell Technical Community College	27
Mitchell Community College	19
Montgomery Community College	33
Nash Community College	7

Institution (cont.)	Degree/certificate completion rate within three years (%)* (cont.)
Pamlico Community College	67
Piedmont Community College	29
Pitt Community College	13
Randolph Community College	15
Richmond Community College	16
Roanoke-Chowan Community College	38
Robeson Community College	22
Rockingham Community College	15
Rowan-Cabarrus Community College	35
Sampson Community College	22
Sandhills Community College	11
South Piedmont Community College	35
Southeastern Community College	10
Southwestern Community College	32
Stanly Community College	25
Surry Community College	24
Tri-County Community College	28
Vance-Granville Community College	28
Wake Technical Community College	16
Wayne Community College	18
Western Piedmont Community College	24
Wilkes Community College	32
Wilson Community College	24

*For the associate degree, 150% of normal time is 3 years. Completion times vary for programs less than the associate degree.

Source: IPEDS Data Center; August 31, 2014 data (most recent publicly available)

Data reported are for the 2011 cohort of first-time, full-time credential-seeking students

Appendix G: NCGAP Literature Review

A central issue related to the potential effects of the NCGAP policy is whether or not starting at a community college, rather than a four-year institution, has an impact on students' educational attainment. In this review of the literature, we examine the effect of attending two-year institutions on bachelor's degree attainment as well as several related issues, including transfer from two-year to four-year institutions, students' educational expectations, peer effects, and postsecondary student-to-institution match.

Community College Attendance and Bachelor's Degree Attainment

One of the primary challenges of studies of the effect of type of college on student outcomes is that students who start at community colleges differ on average from students starting at four-year institutions. For example, community college students are more likely to have lower math and reading test scores, to come from lower socioeconomic backgrounds, and to have non-traditional enrollment pathways (Alfonso, 2006). Several recent studies have employed methods to account for selection effects, thereby increasing the confidence in findings regarding the influence of college type on academic outcomes. After accounting for selection, *community college students are less likely to complete bachelor's degrees when compared to students who start at four-year institutions* (Brand, Pfeffer, & Goldrick-Rab, 2014; Doyle, 2009; Long & Kurlaender, 2009; Reynolds, 2012; Smith & Stange, 2015).

Studies indicate that a variety of contextual factors can impact bachelor's degree attainment, including loss of credit at transfer (Monaghan & Attewell, 2015), academic rigor of high school curriculum (Adelman, 1999), average peer quality (Smith & Stange, 2015), and student background and academic preparation (Brand, Pfeffer, & Goldrick-Rab, 2014; Dougherty & Kienzl, 2006). Other factors that have been proposed to impact the probability of bachelor's degree completion and potentially explain the attainment GAP include the community college emphasis on vocational programs and lower amounts of financial aid for transfer students (Dougherty, 1994). However, in a study examining various factors that generate the attainment GAP, Monaghan and Attewell (2015) found that these mechanisms do not contribute to the disparity in completion rates.

Transfer

Several studies found that *among those students who successfully transfer from two-year to four-year institutions*, there is no evidence of a bachelor's degree attainment GAP (Dietrich & Lichtenberger, 2015; Melguizo, Kienzl, & Alfonso, 2011; Monaghan & Attewell, 2015). To create an equal point of retention, these studies compare the attainment of the following two groups: 1) students who started at community colleges and have successfully transferred to a four-year institution and 2) rising juniors who started at four-year colleges. These studies all employ propensity score analysis, which is a statistical technique used to mitigate the problem of selection bias by matching transfer and non-transfer students based on observable characteristics,

thereby controlling for the observed pre-existing differences between students starting in community colleges and those starting in four-year institutions.

However, there are *low rates of transfer from two-year to four-year institutions*, even among students with relatively high numbers of credits earned (Melguizo, Kienzl, & Alfonso, 2011; Monaghan & Attewell, 2015; Roska & Calcagno, 2010). For example, in a study of transfer rates in the California higher education system, only 18% of degree-seeking students (defined in this study as students indicating a goal of degree/certificate completion or transfer) successfully transferred within six years of enrolling in the community college system (Shulock & Moore, 2007). Transfer rates for low-income and minority students are particularly low and are impacted by the racial/ethnic composition of the institution's student body (Wassmer, Moore, & Shulock, 2004). Additionally, women attending community colleges are less likely to successfully transfer than men (Surette, 2001).

Educational Expectations

Scholars have debated the impact of attending community colleges on educational expectations (Wang, 2012). Initial research on the impact of community colleges on educational expectations suggested a “cooling out” function of these institutions (Clark, 1960), but more recent research indicates that two-year college attendance does not cool out expectations and may, in fact, “warm” expectations (Alexander, Bozick, & Entwisle, 2008; Leigh & Gill, 2003; Leigh & Gill, 2004; Roksa, 2006; Wang, 2013). However, research on labor market returns suggests that community college transfers are less likely to major in high-wage fields of study (Hilmer, 2000) and that community college transfer students, on average, do not catch up to students starting at four-year institutions in terms of post-college earnings (Gill & Leigh, 2003; Reynolds, 2006).

Peer effects

The effect that peers have on students' educational achievement is another important factor when considering the potential impact of the NCGAP policy. Findings from the higher education peer effects literature are mixed but most researchers agree that peer effects exist (Griffith & Rask, 2014; Sacerdote, 2014). In a review of the literature, Sacerdote (2014) suggests that peer effects exist for a variety of academic and non-academic outcomes. In a study of freshmen students who were randomly assigned to peer groups, Carrell, Fullerton, and West (2009) found that “a 100-point increase in the peer-group average SAT verbal score increased individual GPA by roughly 0.4 grade points on a 4.0 scale” and that these peer effects persist (at a diminished rate) into subsequent years. Additionally, this study suggested that *the lowest ability students benefit the most from having high-quality peers* (Carrell, Fullerton, & West, 2009). Sacerdote (2001) also found positive peer effects when studying roommates rather than larger peer groups. In this study, having a roommate in the top 25% of incoming students resulted in an increase of 0.06 GPA points. Overall, peer effects appear largest for male, minority, and low-income students and low ability students benefit the most from having high ability roommates (Griffith & Rask, 2014).

Postsecondary Match

Researchers have also examined the academic match between students and colleges, as this is also a factor in college completion. Undermatching occurs when “a student’s academic credentials permit them access to a college or university that is more selective than the postsecondary alternative they actually choose” (Smith, Pender, Howell, & Hurwitz, 2012, p. 2). Postsecondary undermatch is a pervasive phenomenon and is especially prevalent among low-SES populations and first-generation college students (Belasco & Trivette, 2015; Smith et al., 2012). This phenomenon is problematic because research indicates that all students gain from attending more selective colleges, and underrepresented student groups (low-SES, Black, Latino, and Native American) have the most substantial gains (Alon & Tienda, 2005; Long, 2010). Specifically, students attending selective colleges are more likely to complete bachelor’s degrees than students at non-selective colleges (Melguizo, 2008). Furthermore, a recent study using regression discontinuity (a quasi-experimental design) found that “overmatching” (enrolling in a college where the average level of academic skill substantially exceeds the students’ own skill level) is beneficial for students by improving degree completion (Goodman, Hurwitz, & Smith, 2015). Additionally, the monetary returns to college selectivity are large for Black and Latino students as well as students from less-educated families (Dale & Krueger, 2011).

Literature Review References

- Adelman, C. (1999). *Answers in the toolbox: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- Alexander, K., Bozick, R., & Entwisle, D. (2008). Warming up, cooling out, or holding steady? Persistence and change in educational expectations after high school. *Sociology of Education*, 81(4), 371–396.
- Alon, S., & Tienda, M. (2005). Assessing the "mismatch" hypothesis: Differences in college graduation rates by institutional selectivity. *Sociology of Education*, 78(4), 294-315.
- Belasco, A. S., & Trivette, M. J. (2015). Aiming low: Estimating the scope and predictors of postsecondary undermatch. *The Journal of Higher Education*, 86(2), 233-263.
- Brand, J.E., Pfeffer, F. T., & Goldrick-Rab, S. (2014). The community college effect revisited: The importance of attending to heterogeneity and complex counterfactuals. *Sociological Science*, 1, 448-465.
- Carrell, S. E., Fullerton, R. L., & West, J. E. (2009). Does your cohort matter? Measuring peer effects in college achievement. *Journal of Labor Economics*, 27(3), 439-464.
- Clark, B. R. (1960). The cooling-out function in higher education. *American Journal of Sociology*, 65(6), 569–576.
- Dale, S., & Krueger, A. B. (2011). *Estimating the return to college selectivity over the career using administrative earnings data*. NBER Working Paper Series. Cambridge, MA: National Bureau of Economic Research.
- Dietrich, C. C., & Lichtenberger, E. J. (2015). Using propensity score matching to test the community college penalty assumption. *Review of Higher Education*, 38(2), 193-219.
- Dougherty, K. J. (1994). *The contradictory college: The conflicting origins, impacts, and futures of the community college*. Albany: State University of New York Press.
- Dougherty, K. J., & Kienzl, G. S. (2006). It's not enough to get through the open door: Inequalities by social background in transfer from community colleges to four-year colleges, *Teachers College Record*, 108(3), 452-487.
- Doyle, W. R. (2009). The effect of community college enrollment on bachelor's degree completion. *Economics of Education Review*, 28, 199-206.
- Gill, A. M., & Leigh, D. E. (2003). Do the returns to community colleges differ between academic and vocational programs? *Journal of Human Resources*, 38(1), 134-155.

- Goodman, J., Hurwitz, M., & Smith, J. (2015). *College access, initial college choice and degree completion*. NBER Working Paper Series. Cambridge, MA: National Bureau of Economic Research.
- Griffith, A. L., & Rask, K. N. (2014). Peer effects in higher education: A look at heterogeneous impacts. *Economics of Education Review, 39*, 65-77.
- Hilmer, M. J. (2000). Does the return to university quality differ for transfer students and direct attendees? *Economics of Education Review, 19*, 47-61.
- Leigh, D. E., & Gill, A. M. (2003). Do community colleges really divert students from earning bachelor's degrees? *Economics of Education Review, 22*, 23-30.
- Leigh, D. E., & Gill, A. M. (2004). The effect of community colleges on changing students' educational aspirations. *Economics of Education Review, 23*(1), 95-102.
- Long, B. T., & Kurlaender, M. (2009). Do community colleges provide a viable pathway to a baccalaureate degree? *Educational Evaluation and Policy Analysis, 31*(1), 30-53.
- Long, M. C. (2010). Changes in the returns to education and college quality. *Economics of Education Review, 29*, 338-347.
- Melguizo, T. (2008). Quality matters: Assessing the impact of attending more selective institutions on college completion rates of minorities. *Research in Higher Education, 49*(3), 214-236.
- Melguizo, T., Kienzl, G. S., & Alfonso, M. (2011). Comparing the educational attainment of community college transfer students and four-year college rising juniors using propensity score matching methods. *The Journal of Higher Education, 82*(3), 265-291.
- Monaghan, D. B., & Attewell, P. (2015). The community college route to the bachelor's degree. *Educational Evaluation and Policy Analysis, 37*(1), 70-91.
- Reynolds, C. L. (2006). *Where to attend? Estimates of the effects of beginning at a two-year college* (Working Paper). Ann Arbor, MI: University of Michigan.
- Reynolds, C. L. (2012). Where to attend? Estimating the effects of beginning college at a two-year institution. *Economics of Education Review, 31*, 345-362.
- Roksa, J. (2006). Does vocational focus of community colleges hinder students' educational attainment? *The Review of Higher Education, 29*(4), 499-526.
- Roska, J., & Calcagno, J. C. (2010). Catching up in community colleges: Academic preparation and transfer to four-year institutions. *Teachers College Record, 112*(1), 260-288.

- Sacerdote, B. (2001). Peer effects with random assignment: Results for Dartmouth roommates. *Quarterly Journal of Economics*, 116(2), 681-704.
- Sacerdote, B. (2014). Experimental and quasi-experimental analysis of peer effects: Two steps forward? *Annual Review of Economics*, 6, 253-72.
- Shulock, N., & Moore, C. (2007). *Rules of the game: How state policy creates barriers to degree completion and impedes student success in the California community colleges*. Sacramento, CA: Institute for Higher Education Leadership and Policy.
- Smith, J., Pender, M., Howell, J., & Hurwitz, M. (2012). *Getting into college: Postsecondary academic undermatch*. New York, NY: The College Board.
- Smith, J., & Stange, K. (2015). *A new measure of college quality to study the effects of college sector and peers on degree attainment*. NBER Working Paper Series. Cambridge, MA: National Bureau of Economic Research.
- Surette, B. J. (2001). Transfer from two-year to four-year college: An analysis of gender differences. *Economics of Education Review*, 20, 151-163.
- Wang, X. (2012). Stability of educational expectations among baccalaureate aspirants beginning at community colleges. *Community College Review*, 40(4), 300-319.
- Wang, X. (2013). Baccalaureate expectations of community college students: Socio-demographic, motivational, and contextual influences. *Teachers College Record*, 115(4), 1-39.
- Wassmer, R., Moore, C., & Shulock, N. (2004). Effect of racial/ethnic composition on transfer rates in community colleges: Implications for policy and practice. *Research in Higher Education*, 45(6), 651-672.

Appendix H: Economic Impact

To estimate the economic impact of this implementation strategy required making several assumptions.

1. Out-of-State Students. We assume no out-of-state student would relocate to North Carolina to attend a North Carolina community college, particularly given community colleges do not provide housing options. UNC institutions will lose 104 students who pay the full-cost for their education. Over 40% of these students graduate and 40% stay and work in North Carolina at some point within the first three-years of graduating.⁸⁰
2. Program Participation Rate. Using UNC admission data, we find that of the UNC rejected Fall 2014 applicants within a GPA range of 2.5 to 2.7, 39.4% enroll at a North Carolina community college.⁸¹ UNC-Chapel Hill's C-STEP admission program, which targets low- to moderate-income high school students, has a 44% participation rate over the past three years for the 62 unsuccessful first-year candidates that were offered the program. Given these data points, program participation rates are likely to be moderate. This is not surprising given students have alternate four-year degree options, i.e., private, for-profit, and out-of-state four-year schools and colleges.
3. Successful Transition. Only 26% of community college starters with a 2.5 to 2.7 weighted high school GPA and who likely intend to transfer, successfully did so. Only 7% transferred after attaining an Associate Degree of Arts or Sciences (AA/AS).⁸²
4. UNC Graduation. Finally, not all community college transfers graduate, UNC data shows that AA/AS transfers with a GPA of 2.5-2.7 have a 6-year graduation rate of 67%.⁸³ For the community college students that we tracked in our study, only 11% graduated with a bachelor's degree in six-years compared to 36% of UNC direct attendees, a 25% difference.

Using a range of assumptions, illustrated in Table H-1, North Carolina could expect to see a decline in baccalaureate degree completers between 58% (126) to 83% (179) for the students who would be impacted by NCGAP. To create a setting that is baccalaureate degree neutral, NCGAP would need a 77% participation rate (a 75% increase over current estimates based of UNC-Chapel Hill's C-STEP participation rates); 77% of all community college starters need to complete an associates (this is a graduation rate that rivals selective four-year institutions); all the associate degree holders would need to successfully transfer (a 1000% percentage point increase over actuals); and finally, UNC would increase the success of transfer students to 74%, a 10% increase. To achieve outcomes that form the basis of the break-even in number of degrees awarded would require additional resources, thus negating much of the projected savings.

⁸⁰ From UNC-GA's data files: "Z014_grad rates" and "3-year out-of-state graduates outcomes_15DEC15"

⁸¹ From UNC-GA's data files: "Z083 NCGAP Fall14_rejected_apps.exls"

⁸² NCGAP 09 Finance Model File, lines 60-65 & 84-87

⁸³ NCGAP 09 Finance Model File, lines 98-101

Table H-1. NCGAP impact on degree attainment

Assumption	Actuals	Low Participation Estimate	High Participation Estimate	Break-Even Number of Degrees
Projected Number of Degrees Awarded from UNC (In-State & Out-of-State)	216	216	216	216
Number of In-State Students between a 2.5 and 2.7 HSGPA (Fall 2014)	491	491	491	491
NCGAP Participation Rate	N/A	44%	55% (25% increase)	77% (75% increase)
Successfully Transfer with Associates in 3 years (associate degree grad rate)	7%	26% (271% increase)	50% (614% increase)	77% (1000% increase)
Successfully Transfer with or without an Associate Degree within 3 years	26%	N/A	N/A	N/A
Successful Transfers that Graduate with Bachelor's within six years	67%	67%	67%	74% (10% increase)
Degrees Awarded by NCGAP Participants		37	90	216
Total Degrees Lost		179	126	0
Percentage Decline		83%	58%	0%

The loss of baccalaureate degree completers has significant economic impact to the state of North Carolina in terms of lost wages, even after offsetting the increased income for the students who complete an associate but do not go on to complete a bachelor's degree. Using the North Carolina Commerce tool, NC Tower, the estimates suggest that the state could realize a decline of between \$1.2 and \$1.5 million in net wages annually.

Further, transfer students take longer to graduate than direct entrants. Of those that graduate, 31.3% of direct entrants graduate within 4-years compared to only 10.0% of transfers and 50.0%

of direct entrants graduate within 5-years compared to 43.3% of transfers.⁸⁴ The opportunity cost is significant and estimates for this student group range between \$3.1 and \$3.6 million in annual lost wages.

These losses are somewhat mitigated by the cost-savings to the State. Based on an analysis of the attendance patterns of students who would likely be identified to participate in NCGAP, we estimate that it would cost the State roughly \$8,000 less per student if he/she completes an associate degree before transferring to and completing a baccalaureate degree at a UNC institution within six years.

⁸⁴ NCGAP 09 Analytical File, lines 214-22 & 227-230

Appendix I: Demographic Impact of GPA Threshold

Table I-1. Number and Percent of Fall 2014 New, First-Time Freshmen between 2.5 - 2.7 Weighted High School GPA by Institution

Institution	Total Enrollment	# between 2.5 - 2.7 HSGPA	% between 2.5 - 2.7 HSGPA	# In-state between 2.5 - 2.7 HSGPA	% In-state between 2.5 - 2.7 HSGPA
ECSU	199	39	19.6%	33	84.6%
WSSU	757	125	16.5%	112	89.6%
NCCU	908	129	14.2%	113	87.6%
FSU	302	36	11.9%	31	86.1%
UNCP	1,056	78	7.4%	71	91.0%
NCAT	1,696	69	4.1%	60	87.0%
UNCSA	204	3	1.5%	2	66.7%
ECU	4,163	60	1.4%	37	61.7%
UNCA	592	4	0.7%	2	50.0%
UNCG	2,556	17	0.7%	14	82.4%
WCU	1,525	6	0.4%	4	66.7%
UNCC	3,158	10	0.3%	7	70.0%
ASU	2,975	5	0.2%	3	60.0%
NCSU	4,251	7	0.2%	0	0.0%
UNCW	2,136	4	0.2%	1	25.0%
UNC-CH	3,562	3	0.1%	1	33.3%
UNC Total	30,040	595	2.0%	491	82.5%

Source: UNC-GA's data files: "2.5-2.7 analysis"

Table I-2. Number and Percent of Fall 2014 New, First-Time Freshmen between 2.5 - 2.7 Weighted High School GPA by Institution and Race/Ethnicity

Institution	Total	White	Black	Hispanic	American Indian/ Alaskan	Other
	N	%	%	%	%	%
ASU	5	80%	0%	0%	0%	20%
ECSU	39	5%	90%	3%	0%	3%
ECU	60	75%	15%	2%	2%	7%
FSU	36	3%	78%	8%	3%	8%
NCAT	69	3%	80%	3%	0%	14%
NCCU	129	1%	87%	4%	0%	9%
NCSU	7	57%	43%	0%	0%	0%
UNC-CH	3	33%	67%	0%	0%	0%
UNCA	4	50%	25%	0%	0%	25%
UNCC	10	70%	20%	0%	0%	10%
UNCG	17	59%	29%	6%	0%	6%
UNCP	78	23%	53%	8%	9%	8%
UNCSA	3	67%	0%	0%	0%	33%
UNCW	4	75%	0%	0%	0%	25%
WCU	6	17%	67%	17%	0%	0%
WSSU	125	1%	89%	2%	1%	7%
UNC Total	595	17%	69%	4%	2%	8%

Source: UNC-GA's data files: 2.5-2.7 analysis