

GENERAL EDUCATION CORE COMPETENCY ASSESSMENT REPORT (2022-2023)

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Introduction

General Education core competencies are measurable skills students need for successful employment, transfer to a four-year institution, and lifelong learning across all programs. The following report documents the assessments conducted in the 2022-2023 academic year in accordance with the Curriculum Education internal document "General Education Assessment Plan Fall 2021", which details the purpose and rationale for Core Competency Assessment at the college.

Background: General Education Core Competencies

Until Fall 2021, Wake Technical Community College focused on three core competencies:

- 1) **Critical Thinking:** The ability to reason and solve problems, draw conclusions, or generate new ideas or artifacts using appropriate knowledge and skills.
- 2) **Quantitative Literacy:** The habit of mind in which an individual identifies, understands and engages in mathematical reasoning to make well-founded analytical decisions.
- 3) **Written Communication:** The ability to produce college-level content that conveys purpose and meaning at the mastery level.

Based on feedback from program advisory committees, Wake Tech's General Education competencies were consolidated from three into two:

- 1) **Effective Communication:** The ability to produce college-level content that conveys purpose and meaning at the mastery level.
- 2) **Problem Solving:** The ability to reason and solve problems, draw conclusions, or generate new ideas or artifacts using appropriate knowledge and skills.

The rationale provided for changing Written Communication to Effective Communication was that the new phrasing allows for programs to choose oral or written communication as appropriate for the program. Similarly, changes were made to combine Quantitative Literacy and Critical Thinking into the umbrella category of Problem Solving, as employers had commented on advisory committee surveys about their need for problem solving. The combination into "Problem Solving" fit with the language requested by advisory committees and provided more flexibility to the programs (Bakken, J. personal communication, July 11, 2022).

The needs expressed by employers are consistent with labor market data from Wake County and surrounding regions. "Communications" is the top common skill listed among all postings for jobs requiring either an Associates or Bachelor's degree, and "Problem Solving" is among the top ten for both degrees.



Top common skills among job postings in Wake and Surrounding Counties

Bachelors
Associates

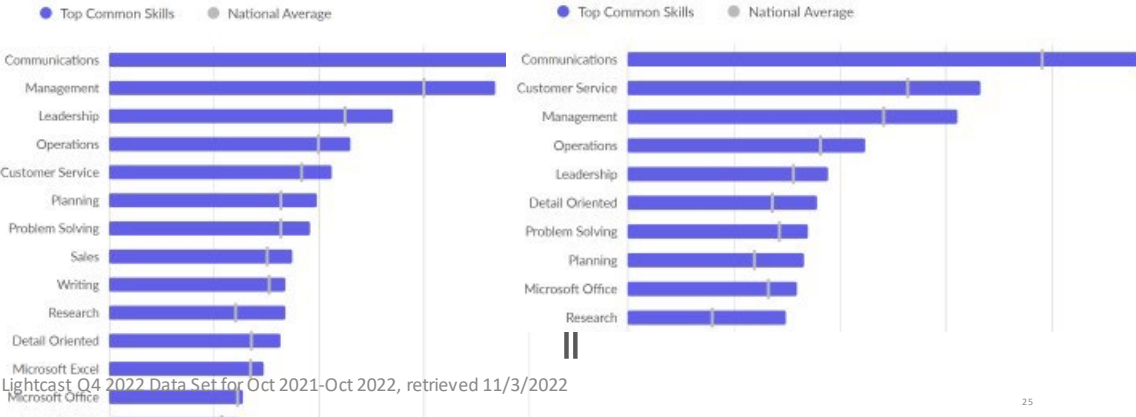


Figure 14: Top common skills among job posting in Wake and surrounding counties, Lightcast Q4 2022

Direct Assessment

Since Fall of 2018, the direct assessment process of Wake Tech’s General Education Core Competencies has included assessment at the course level, with each program identifying courses where every student is assessed in each outcome. Courses for which a program has mapped General Education competencies must assess the extent to which proficiency targets were met. The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.).

Indirect Assessment

In addition to the direct assessment of student learning, indirect assessments of student learning have included:

- **WTCC Graduate Survey:** Continuously open survey listed as a requirement for Wake Tech students to take when they apply to graduate, asks students to indicate whether they believed their level of proficiency with the college’s competencies “Strongly Improved”, “Moderately Improved”, or “Did Not Improve” as a result of their Wake Tech education. Between July 15, 2022 and June 29, 2023, a total of 592 students responded to the Graduate Survey and completed the questions related to the core competencies.
- **Advisory Committee Satisfaction Survey:** Survey of external program advisors that asks for perspectives on the extent to which Wake Tech’s degree students achieve the college’s core competencies. Note: due to the college’s reorganization of advisory committees, this survey was not



administered for the 2022-2023 academic year and is not included as an assessment measure for this report.

- Community College Survey of Student Engagement (CCSSE):** A national survey used to assess student engagement and educational practices in community colleges. Wake Tech has administered this survey to its students every three years, using it to benchmark current student perceptions of their core competencies against other community colleges across the nation. Since the CCSSE was not administered in the 2022-2023 academic year, this report includes the most recent data from Spring 2022.
- Community College Faculty Survey of Student Engagement (CCFSSE):** A national survey eliciting information from faculty about their perceptions regarding students' educational experiences, their teaching practices, and the ways they spend their professional time—both in and out of the classroom. Since the CCFSSE was not administered in the 2022-2023 academic year, this report includes the most recent data from Spring 2022.
- UNC Academic Performance of First Year WTCC Transfer Students:** Dashboards reported by the UNC System General Administration, analyzed to compare the performance of Wake Tech transfer students in UNC English, Math, Social Sciences, and Natural Science courses with those of UNC Non-Transfer Juniors and UNC-UNC Transfers. These comparisons are used as indirect indicators of post-graduate attainment of the competencies aligned with those courses.

Table 1: UNC Courses and WTCC Core Competencies

UNC Courses	WTCC Core Competency
English Courses	Effective Communication
Math Courses	Problem Solving
Social Science Courses	Problem Solving
Natural Science Courses	Problem Solving



Assessment Results by Core Competency

Effective Communication (formerly Written Communication)

Direct Measures: Gen Ed Core Competencies Assessed in Courses

In Fall 2021, eight of the nine General Education courses that assessed for Effective Communication across all programs achieved an overall proficiency of at least 70% average for all measures. One course (ENG-111) was below the proficiency target by four percentage points.

In Fall 2022, six of the nine General Education courses that assessed for Effective Communication across all programs achieved an overall proficiency of at least 70% average for all measures. Two courses (ART-114 and ENG-112) were below the proficiency target by less than one percentage point. One course (ENG-114) was below the proficiency target by 10 percentage points.

Table 2: Effective communication general education course assessment results, FA21 and FA22

COURSE	TOTAL ENROLLED SEATS IN FA21^[1]	TOTAL AVERAGE PROFICIENCY RATE IN FA21^[2]	TOTAL ENROLLED SEATS IN FA22^[1]	TOTAL AVERAGE PROFICIENCY RATE IN FA22^[2]
ART-114	247	70.4%	236	69.3%
COM-110	412	84.0%	367	92.3%
COM-120	1319	84.0%	1344	84.5%
COM-231	704	86.0%	752	72.5%
EGR-150	247	82.0%	121	91.0%
ENG-110	152	86.0%	182	100.0%
ENG-111	3618	66.0%	3779	74.6%
ENG-112	1361	71.0%	1346	69.6%
ENG-114	246	79.0%	181	60.0%

¹ Total enrolled seats do not equate to the total number of students assessed for the course, which varied by measure and whether/how sampling was conducted.

² The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.). When outcomes had multiple measures, the average proficiency level was taken among all targets for that particular outcome. When multiple outcomes measured the same core competency, the average was taken for all measures for all outcomes.

In addition to the nine General Education courses, a total of 26 program-specific courses assessed for Effective Communication in among Career Programs in Wake Tech’s Information Technologies (IT), Building, Engineering and Skilled Technologies (BEST), and Business and Public Services Technologies (BPST) divisions (see table in Appendix A for a full list of the 26 courses).³ Out of the 26 courses, 23 courses achieved their proficiency rate, while just three of the courses did not.

Indirect Measures: Graduate Survey

Among graduates who completed Wake Tech’s Graduate survey across all programs, nearly all students (97%) indicated that they believed their level of proficiency improved either strongly or moderately in Effective Communication as a result of their Wake Technical Community College education. A higher proportion of Black or African American students and Hispanic or Latino students (71% and 70%, respectively) reported their proficiency in these core competencies strongly improved and a lower proportion of Caucasian students and Asian students (63% for both) reported their proficiency strongly improved.

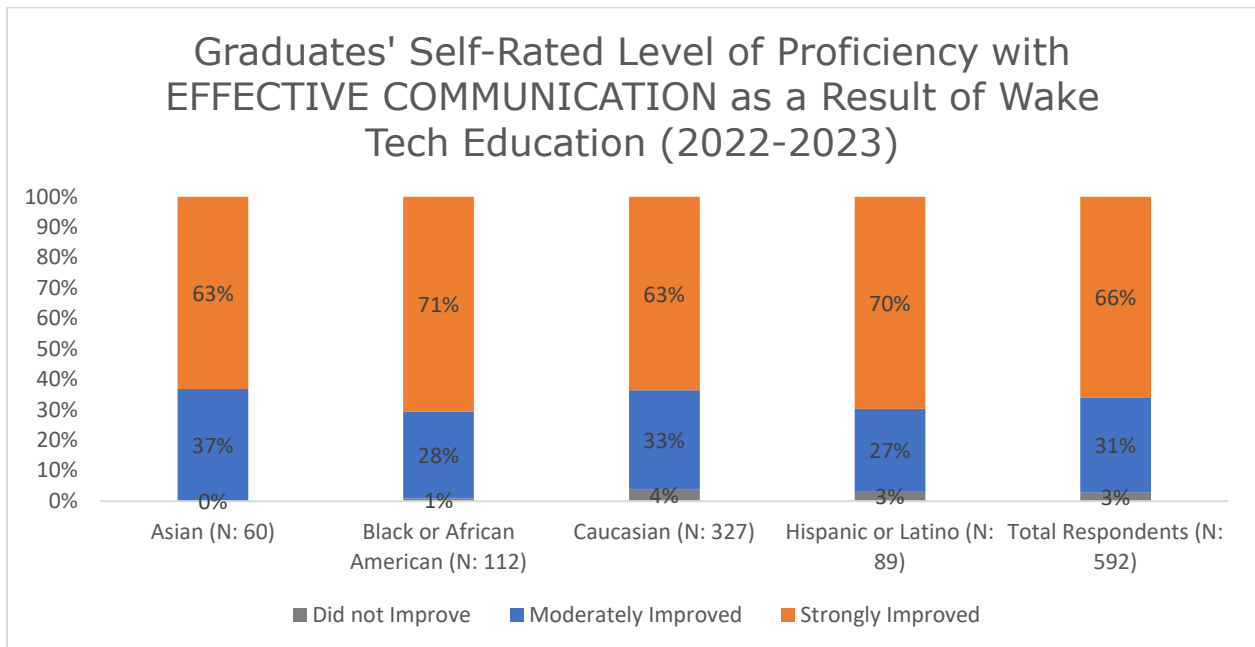


Figure 15: Graduate survey results related to Effective Communication, 2022-2023

³ Career Programs in other divisions did not report program-specific courses used for assessing General Education core competencies.



Indirect Measures: CCSSE/CCFSSE Results (Spring 2022)

Students across all programs answered the following question for different competencies on Item 11 of the CCSSE and CCFSSSE surveys in Spring 2022: How much has your experience at this college contributed to your knowledge, skills, and personal development in the following areas?

As shown, by the graphs, a majority of students in each subgroup reported that their experience at Wake Tech contributed “quite a bit” or “very much” to their knowledge, skills, and personal development in writing clearly and effectively and speaking clearly and effectively. More than other subgroups, Hispanic/Latino students (29%) reported that Wake Tech contributed only “some” to writing or speaking clearly and effectively, and White/Caucasian students reported that WTCC contributed “very little” to writing or speaking clearly and effectively.

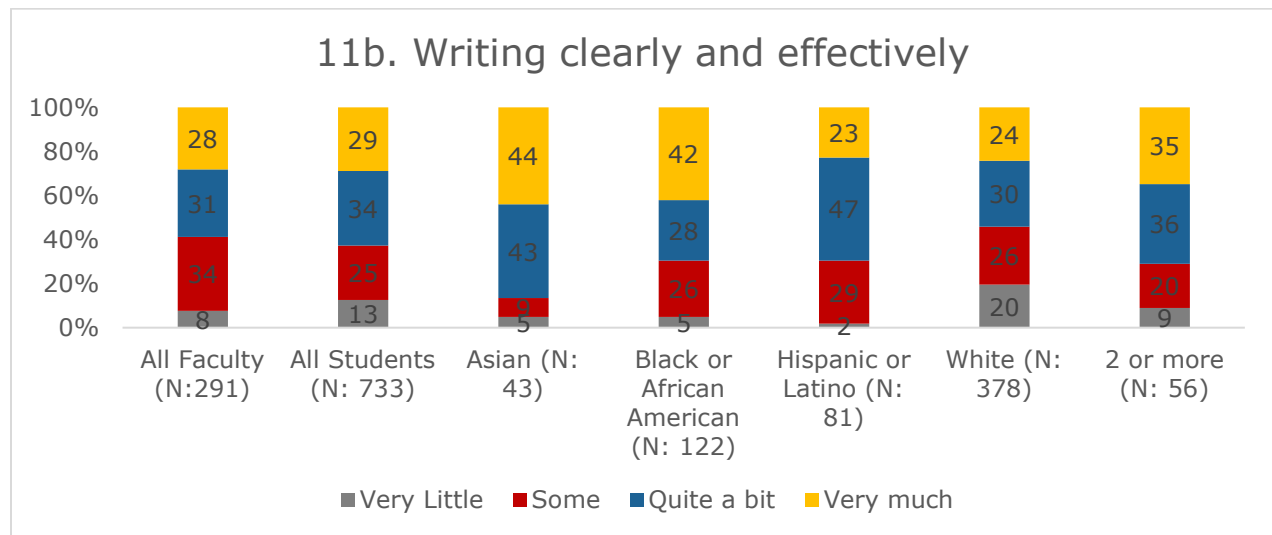


Figure 16: CCSSE results related to writing clearly and effectively, SP22

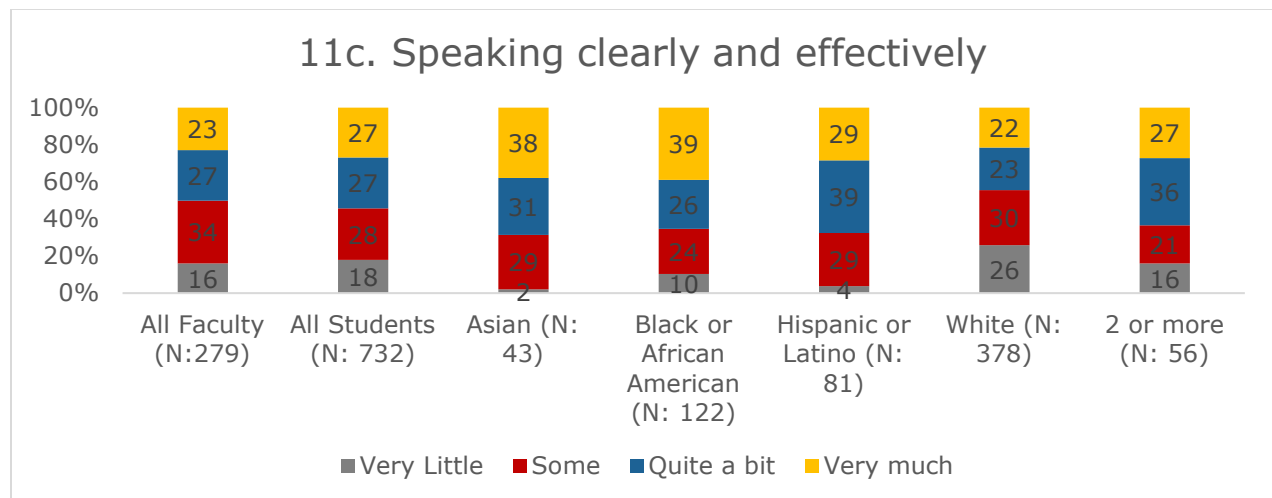


Figure 17: CCSSE results related to speaking clearly and effectively, SP22

UNC English Course Performance of First Year WTCC Transfer Students.

Wake Tech students who transferred to a UNC System college consistently perform at a higher level in English courses, as measured by First-Year GPA, than non-transfer students at UNC system colleges at the same class level. The latest comparison data available from Fall 2021 shows Wake Tech transfer students' average GPA in English courses at 3.29 compared to non-transfer students' GPA at 3.08.

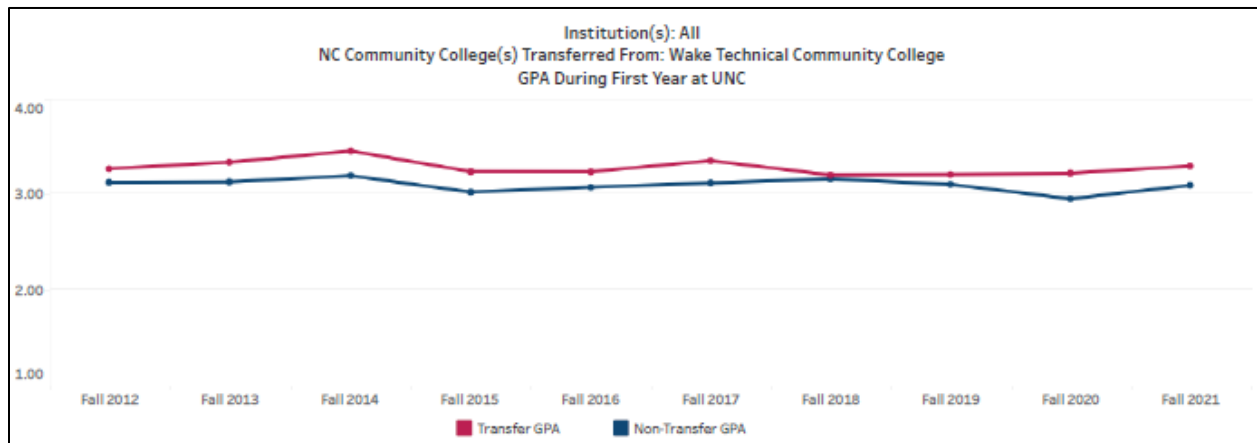


Figure 18: GPA of WTCC transfer students vs. non-transfer students in English courses during first year at UNC

UNC System Transfer Dashboard data retrieved on 6/19/2023. Filter for "Degree Attained Before Transferring" = All

Summary of Effective Communication Core Competency Assessments

With the exception of effective communication competencies assessed in ART-114, ENG-112, and ENG-114, and the three program-specific courses in IT, BEST, and BPST (OST-164, WLD-110, and EDU-284, respectively), all other direct and indirect assessment results indicate that overall, a majority of students are gaining proficiency in Effective Communication for successful employment, transfer to a four-year institution, and lifelong learning across all programs. Wake Tech students transferring to a UNC System College in Fall 2021 performed better in English courses taken within their first year of transferring as compared to native juniors starting in the UNC System.

To improve student proficiency in the writing component of Effective Communication, English 112 and 114 faculty may want to analyze their core competency assessments to determine the specific areas of writing deficiency and the associated supports or curriculum re-designs needed to address those deficiencies.



Problem Solving (formerly Critical Thinking and Quantitative Literacy)

Direct Measures: Gen Ed Outcomes Assessed in Courses

In Fall 2021, of the 22 General Education courses that assessed for Problem Solving, 10 courses in the areas of Student Success, Business, Humanities, Mathematics, and Social Sciences achieved an overall proficiency of at least 70% average for all measures. Twelve courses in the areas of Mathematics, Natural Science and Psychology did not meet the proficiency targets in Fall 2021.

In Fall 2022, of the 22 General Education courses that assessed for Problem Solving, 12 courses in the areas of Student Success, Business, Humanities, Mathematics, and Social Sciences achieved an overall proficiency of at least 70% average for all measures. Ten courses in the areas of Mathematics, Natural Science and Psychology did not meet the proficiency targets in Fall 2022.

Table 3: Problem Solving general education course assessment results, FA21 and FA22

COURSE	TOTAL ENROLLED SEATS IN FA21^[4]	TOTAL AVERAGE PROFICIENCY RATE in FA21^[5]	TOTAL ENROLLED SEATS IN FA21^[3]	TOTAL AVERAGE PROFICIENCY RATE IN FA22^[4]
ACA-122	1784	MEASURE DEEMED UNRELIABLE	2303	69.0%
ECO-151	287	83.0%	322	82.0%
ECO-251	988	73.6%	865	89.2%
ECO-252	474	89.8%	425	88.6%
HIS-131	560	85.0%	668	85.3%
HUM-115	790	76.3%	848	80.5%
BIO-161	162	31.7%	113	43.4%
BIO-168	678	32.2%	489	61.3%
CHM-130	118	64.2%	69	66.2%
MAT-110	335	83.3%	346	79.5%
MAT-121	138	47.2%	120	63.1%
MAT-143	437	52.3%	441	71.7%
MAT-152	689	56.9%	679	65.7%
MAT-171	1391	68.4%	1646	75.9%
MAT-172	418	45.6%	404	66.5%

⁴ Total enrolled seats do not equate to the total number of students assessed for the course, which varied by measure and whether/how sampling was conducted.

⁵ The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.). When outcomes had multiple measures, the average proficiency level was taken among all targets for that particular outcome. When multiple outcomes measured the same core competency, the average was taken for all measures for all outcomes.

MAT-263	157	55.1%	166	75.0%
MAT-271	388	63.1%	414	57.1%
MAT-272	152	70.9%	178	72.7%
POL-120	402	82.8%	349	93.5%
PSY-118	388	80.0%	409	62.7%
PSY-150	2321	68.8%	2325	72.9%
SOC-210	1408	76.9%	1524	69.4%

In addition to the nine General Education, a total of 28 program-specific courses assessed for Problem Solving among Career Programs in Wake Tech’s IT, BEST, and BPST divisions (see table in Appendix B for a full list of the 28 courses).⁶ Out of the 28 courses, 22 courses achieved their proficiency rate, while six of the courses did not.

Indirect Measures: WTCC Graduate Survey

Since Summer of 2022, graduate survey respondents have been asked about their perspectives on their proficiency in Problem Solving, as well as the previous core competencies of Quantitative Literacy and Critical Thinking. Among graduates who completed the survey, nearly all students (97%) indicated that they believed their level of proficiency improved either strongly or moderately in Problem Solving as a result of their Wake Technical Community College education. However, compared to their responses related to Effective Communication, Black or African American and Hispanic or Latino respondents were less likely to indicate that their level of proficiency in Problem Solving strongly improved. Asian students, on the other hand, were more likely to indicate that their level of proficiency strongly improved in Problem Solving compared to Effective Communication.

⁶ Career Programs in other divisions did not report program-specific courses used for assessing General Education core competencies.



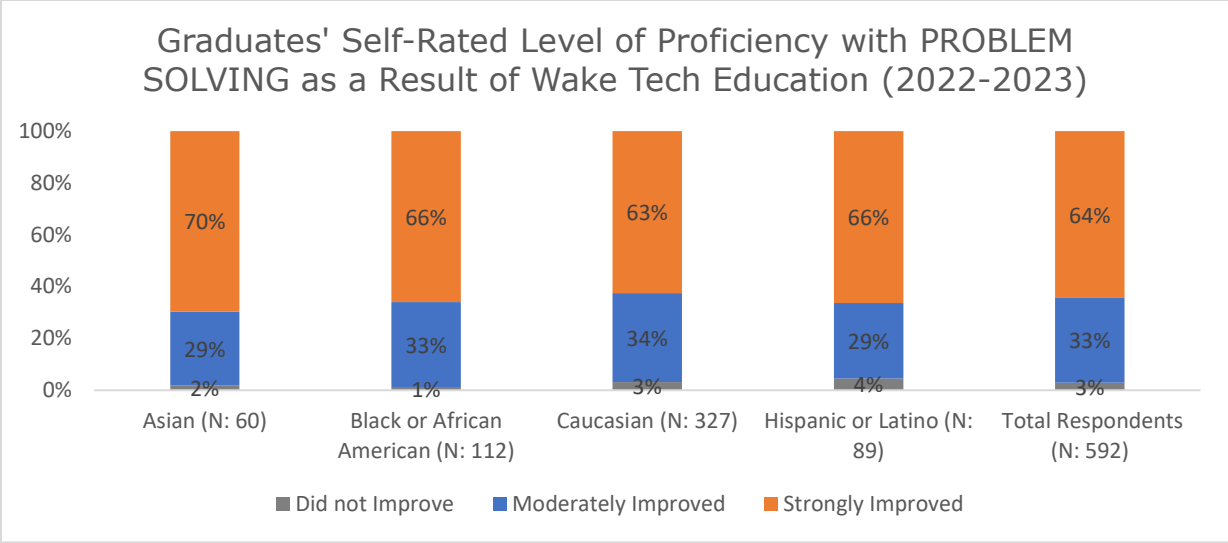


Figure 19: Graduate survey results related to Problem Solving, 2022-2023

To examine whether students may have viewed their levels of proficiency differently as related to Quantitative Literacy versus Critical Thinking, which are currently both under the “Problem Solving” umbrella, responses to these questions are also included. As shown in the figures below, students were overall least likely to have viewed their level of proficiency to have strongly improved in Quantitatively Literacy (59%) and were most likely to have viewed their level of proficiency to have strongly improved in Critical Thinking (69%). For Quantitative Literacy, just over half (52%) of Black or African American students indicated that their proficiency strongly improved, whereas around seven out of 10 students in each major demographic group indicated that their proficiency strongly improved in Critical Thinking.

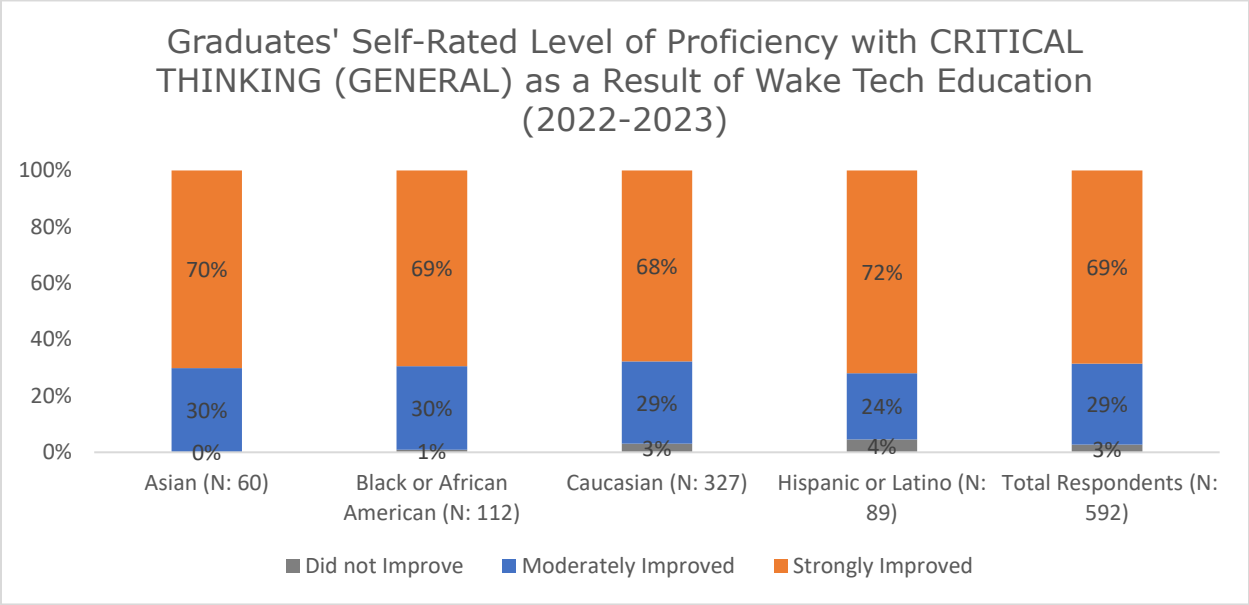


Figure 20: Graduate survey results related to Critical Thinking, 2022-2023

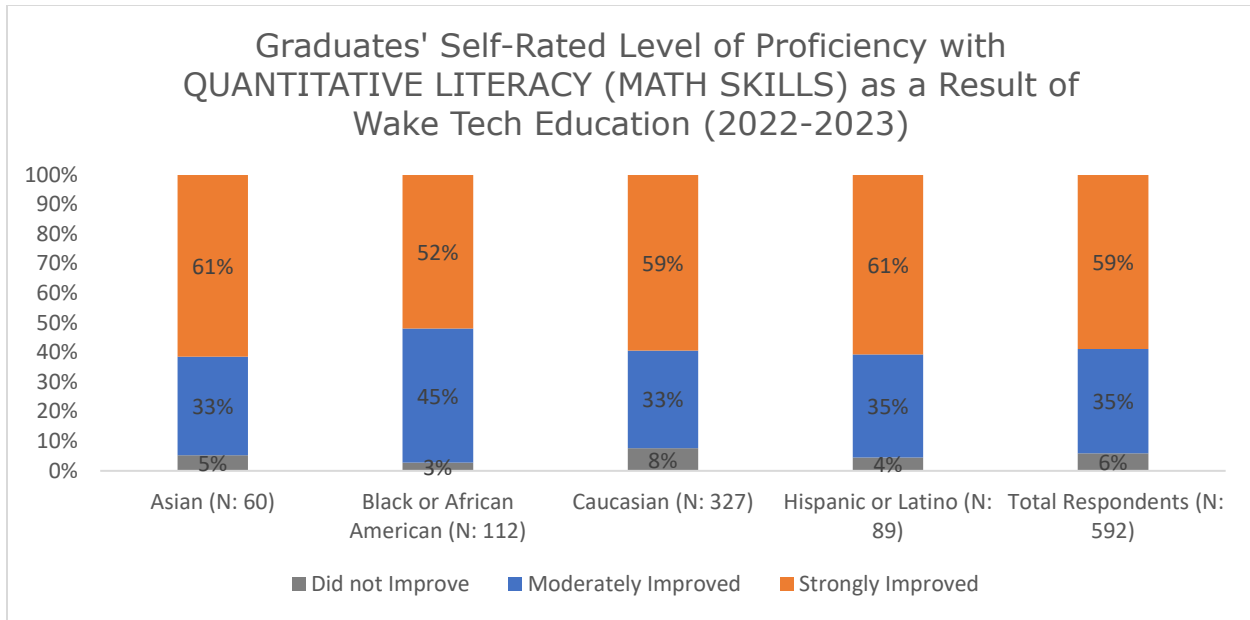


Figure 21: Graduate survey results related to Quantitative Literacy, 2022-2023

Indirect Measures: CCSSE/ CCFSSSE Survey

A majority of students in each subgroup reported that their experiences at Wake Tech contributed to their knowledge, skills, and personal development in thinking critically and analytically “very much” or “quite a bit”. However, less than half of each student subgroup reported “very much” whereas 57% of faculty perceived Wake Tech contributing to their critical thinking and analytical skills “very much”.

Fewer respondents reported that Wake Tech contributed to their ability to solve numerical problems “very much” or “quite a bit”. Higher proportions of Black/African American students (22%), White/Caucasian students (21%) and Faculty (24%) reported that Wake Tech contributed to their ability to solve numerical problems “very little”.

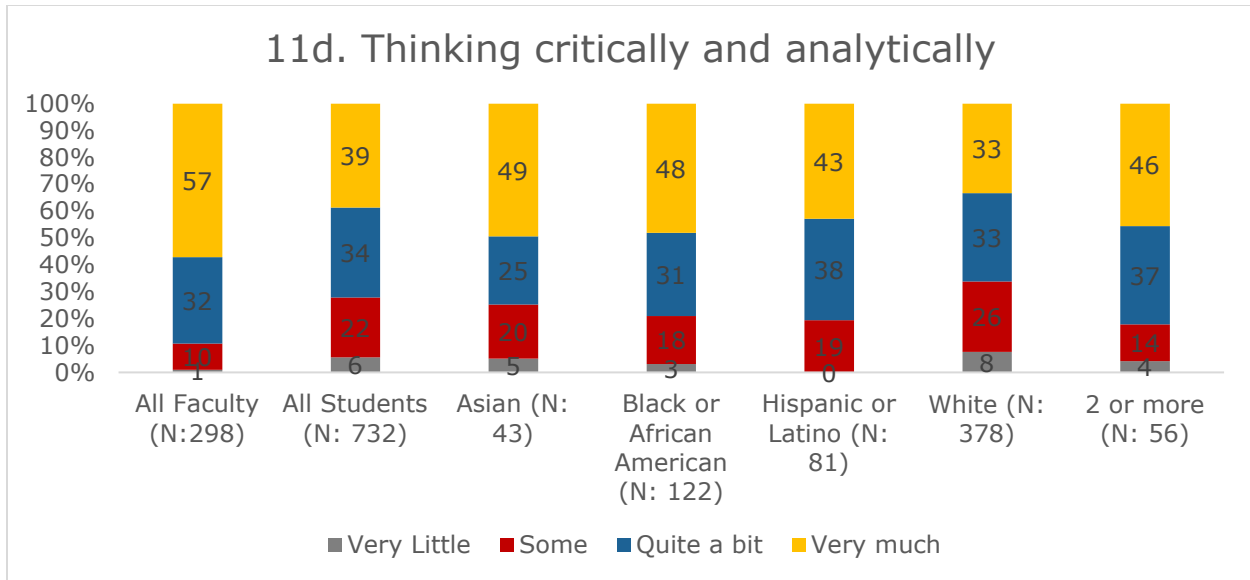


Figure 22: CCSSE results related to thinking critically and analytically, SP22

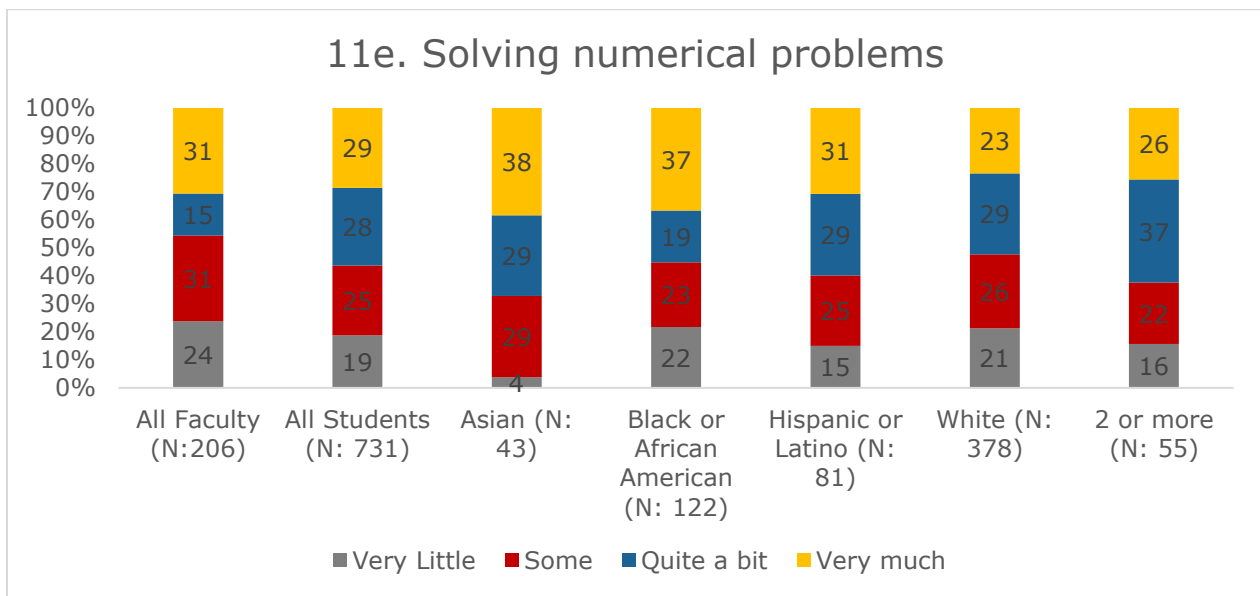


Figure 23: CCSSE results related to solving numerical problems, SP22

UNC Math and Science Course Performance of First Year WTCC Transfer Students.

Wake Tech students who transferred to a UNC System college consistently perform at a higher level in English courses, as measured by First-Year GPA, than non-transfer students at UNC system colleges at the same class level. The latest comparison data available from Fall 2021 shows Wake Tech transfer students outperformed non-transfer students in Natural Science and Social Sciences courses, but not in Mathematics courses.

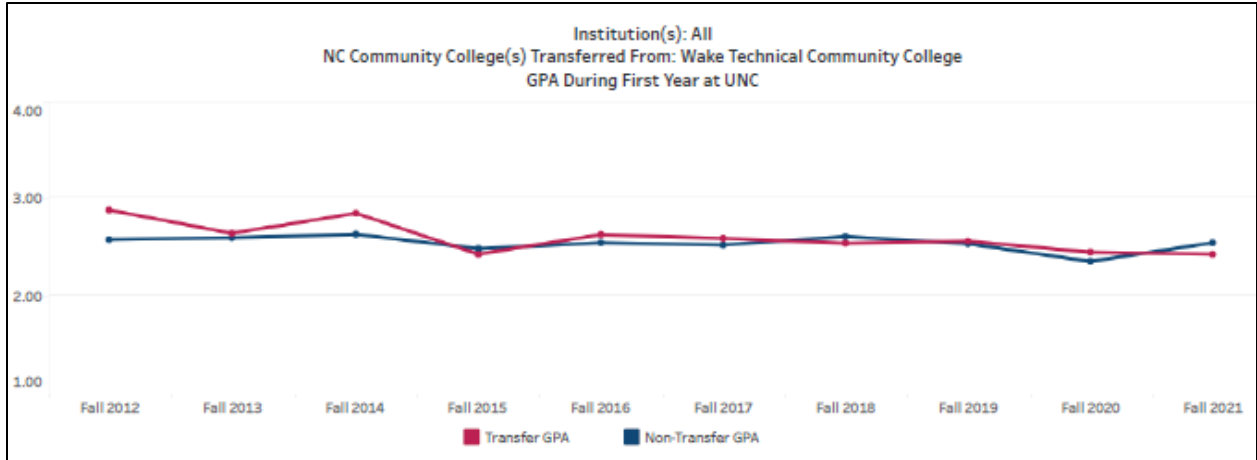


Figure 24: GPA of WTCC transfer students vs. non-transfer students in Mathematics courses during first year at UNC

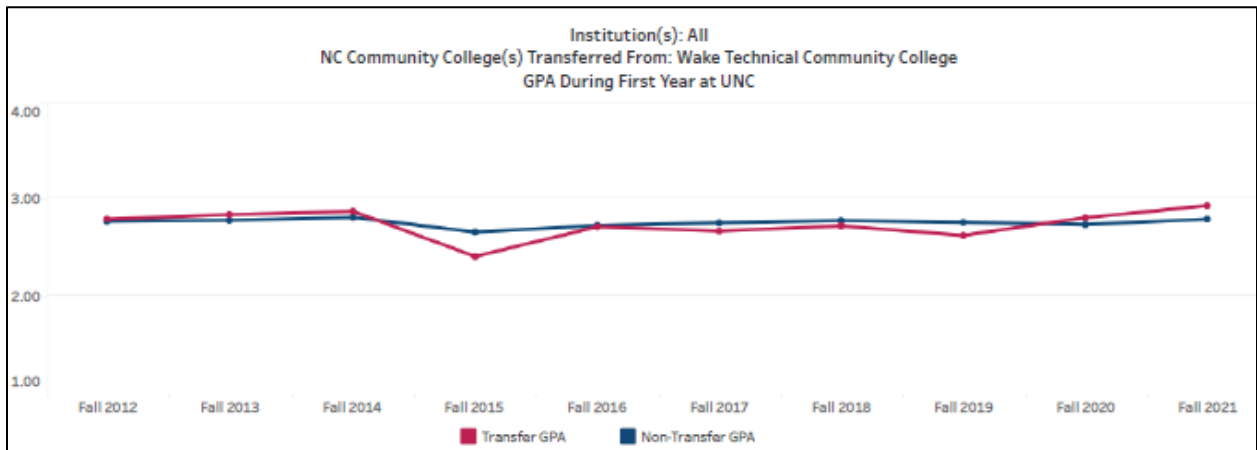


Figure 25: GPA of WTCC transfer students vs. non-transfer students in Natural Science courses during first year at UNC

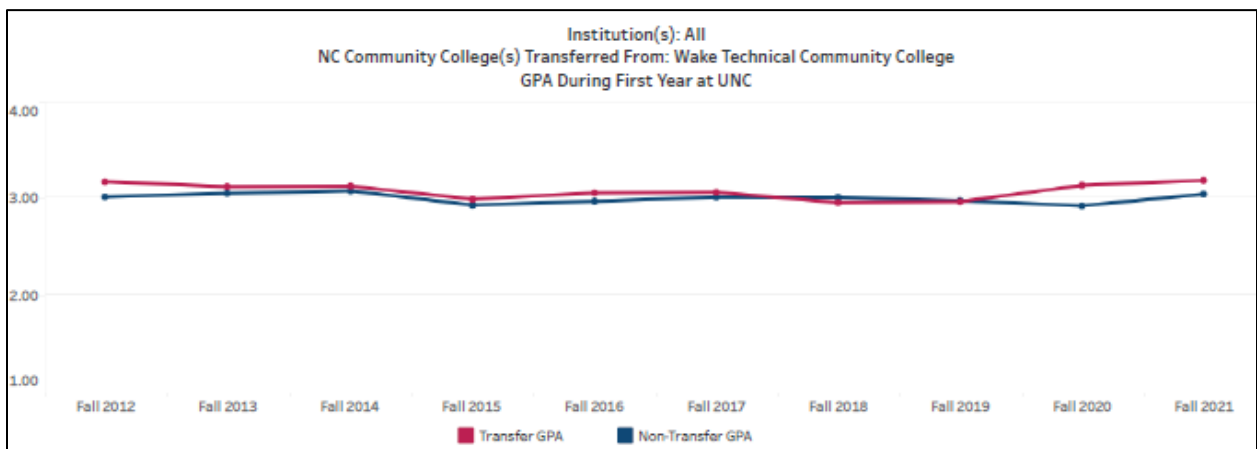


Figure 26: GPA of WTCC transfer students vs. non-transfer students in Social Science courses during first year at UNC

UNC System Transfer Dashboard data retrieved on 6/19/2023. Filter for "Degree Attained Before Transferring" = All



Summary of Problem Solving Core Competency Assessments

Direct assessments from the past two years indicate that a smaller proportion of General Education courses that assessed for Problem Solving have achieved proficiency compared to the proportion that achieved proficiency for Effective Communication. In Fall 2022, proficiency was gained in Student Success, Business, some Mathematics, Humanities and some Social Sciences courses, but was below target in other Mathematics courses, Natural Science, and Social Science courses. Additionally, a smaller proportion of program-specific courses in IT, BEST, and BPST achieved proficiency in Problem Solving compared to the proportion that achieved proficiency in Effective Communication. However, a larger proportion of program-specific courses in these three divisions achieved proficiency in Problem Solving compared to the proportion of General Education courses.

While Wake Tech students transferring to a UNC System College in Fall 2021 performed better in Natural Science and Social Science courses taken within their first year of transferring as compared to native juniors starting in the UNC System, non-transfer students at UNC system colleges performed better in Mathematics courses. Additionally, while about seven out of ten students reported that Wake Tech contributed to gaining proficiency in Critical Thinking skills, fewer felt that Wake Tech contributed substantially to their proficiency in Problem Solving or Quantitative Literacy, particularly among Black or African American students.

Taken together, the direct and indirect assessments indicate that faculty across the college need to find ways to raise the extent to which students are gaining proficiency in the Quantitative Literacy/Mathematical components of their curriculums in order to bolster the extent to which students are able to be proficient in Problem Solving.

Conclusions and Recommendations

This report provides evidence that a greater proportion of General Education courses and program-specific courses that assess for Effective Communication have achieved proficiency than those that assess for Problem Solving. Overall, survey results also indicate that students, particularly students who identified as Black or African American, were least likely to report that their skills in quantitative literacy had improved at Wake Tech compared to other areas of learning related to the core competencies. UNC transfer students did not perform as well in Mathematics courses as did UNC Native Juniors. Additional data shows that across all programs requiring a mathematics course, only 12% of Black or African American students attempt and complete those courses within their first year of enrolling at Wake Tech, and less than 30% of all students do so, far below the 54% level needed to improve college completion rates (Figure 14). Therefore, improving the extent to which students are gaining quantitative literacy or solving numerical problems across their programs, more so than critical thinking, may be needed to raise the proficiency in Problem Solving, improve the extent to which students are



completing MAT courses in their first year, and improve completion rates, especially among Black or African American students.

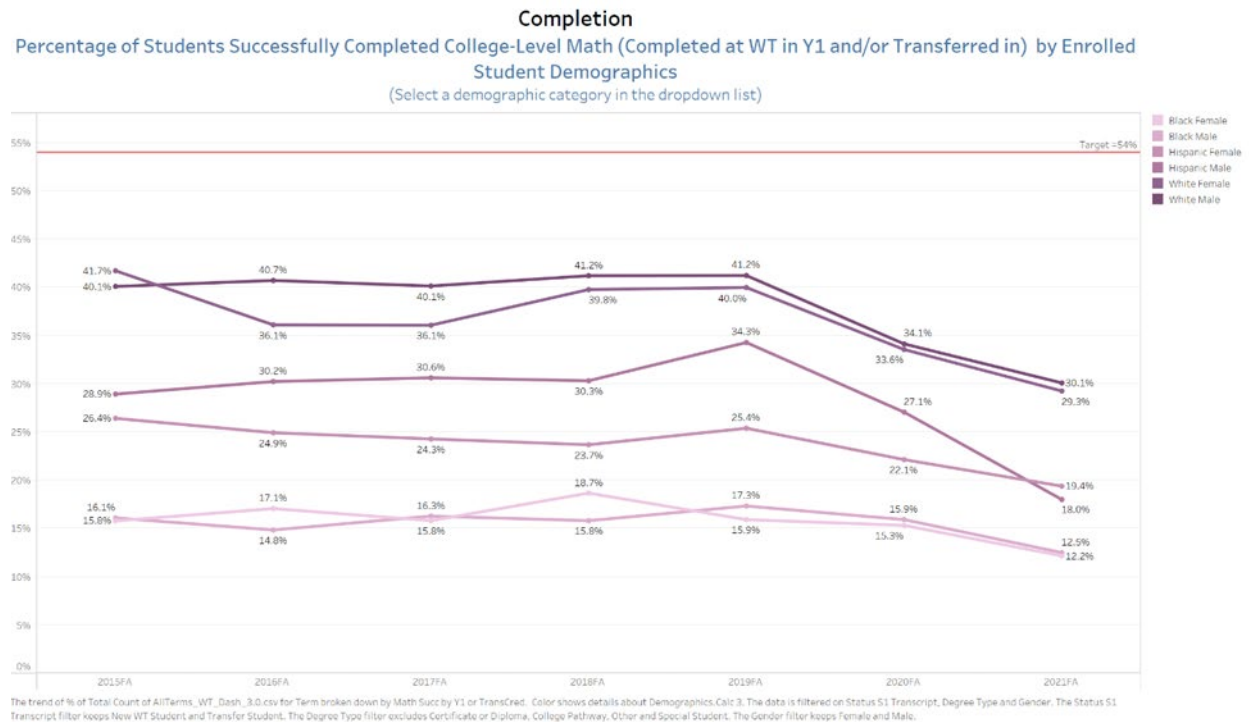


Figure 14. Percentage of fall cohort students across all programs requiring college-level MAT courses who both attempted and completed their MAT courses within their first year of enrollment. Retrieved from <https://waketechedu.sharepoint.com/employee/data-services/SitePages/Strategic-Planning-&-Metrics.aspx>.

Considering previous years’ General Education Assessment Data, combined with other course performance and trend data (See Reach and Rally dashboards and Data Guide), and given that high-demand, living-wage jobs (typically STEM jobs) in Wake County require higher levels of quantitative literacy than other jobs, Wake Tech faculty will want to come together to find ways to improve Quantitative Literacy across their programs in order to advance Wake Tech’s Mission to: *provide equitable access to education that transforms lives through economic mobility and personal fulfillment.*

Appendix A: Career Programs-Specific Courses Used to Assess Effective Communication (IT, BEST, BPST Divisions)

For the following courses, total enrolled seats and proficiency data are from Fall 2022 unless otherwise noted in the Total Enrolled Seats column.

Division	Course	Total Enrolled Seats	Proficiency
IT	SGD-163	83*	MET
IT	OST-164	82	NOT MET
IT	CTS-115	229	MET
IT	CSC-121	157	MET
IT	CTS-289	24*	MET
IT	CSC-134	133	MET
IT	CSC-151	168	EXCEEDED
IT	CSC-289	62*	MET
IT	BAS-270	16	EXCEEDED
IT	GRD-146	30	EXCEEDED
BEST	AHR-180	67	MET
BEST	CMT-226	6**	MET
BEST	MNT-110	29	MET
BEST	WLD-110	75	NOT MET
BPST	ACC-175	7*	MET
BPST	BPA-250	10	MET
BPST	CUL-250	12	MET
BPST	LOG-220	11*	EXCEEDED
BPST	LOG-240	27	MET
BPST	COS-114	31	MET
BPST	ACC-215	58	MET
BPST	EDU-284	13	NOT MET
BPST	BUS-285	34	EXCEEDED
BPST	BUS-259	20	MET
BPST	MKT-227	29	EXCEEDED
BPST	PMT-210	12	EXCEEDED

* Total enrolled seats and proficiency data are from Spring 2023.

** Total enrolled seats and proficiency data are from Summer 2022.



Appendix B: Career Programs-Specific Courses Used to Assess Problem Solving (IT, BEST, BPST Divisions)

For the following courses, total enrolled seats and proficiency data are from Fall 2022 unless otherwise noted in the Total Enrolled Seats column.

Division	Course	Total Enrolled Seats	Proficiency
IT	SGD-212	43	MET
IT	OST-286	77	EXCEEDED
IT	CTS-115	229	MET
IT	CSC-121	157	EXCEEDED
IT	CTS-289	24*	MET
IT	CSC-134	133	MET
IT	CSC-289	62*	MET
IT	BAS-121	45	MET
IT	BAS-270	16	EXCEEDED
IT	GRD-246	24	MET
BEST	DES-285	9*	NOT MET
BEST	AHR-211	7	MET
BEST	ELC-114	24	MET
BEST	CST-241	56	NOT MET
BEST	ARC-213	15*	MET
BEST	CEG-211	21	MET
BEST	ELN-132	16**	MET
BEST	WLD-262	21	NOT MET
BPST	ACC-175	7*	MET
BPST	BPA-250	10	MET
BPST	CUL-250	12	NOT MET
BPST	LOG-211	23*	NOT MET
BPST	LOG-215	27*	EXCEEDED
BPST	COS-114	24	MET
BPST	ACC-215	58	MET
BPST	ACC-227	55*	EXCEEDED
BPST	EDU-284	13	NOT MET
BPST	BUS-115	415	EXCEEDED

* Total enrolled seats and proficiency data are from Spring 2023.

** Total enrolled seats and proficiency data are from Summer 2022.

