

RESEARCH BRIEF

No. 15-17

March 2017

Achievement Gap Analysis Series – Gatekeeper Course Success: Fall 2012 through Fall 2014

NOVA’s commitment to student success is demonstrated by the College’s participation in the Achieving the Dream (ATD) National Reform Network. ATD is a comprehensive nationwide reform movement for student success in which NOVA has been a member since 2007 and a Leader College since 2010. NOVA’s participation in ATD encourages continuous monitoring of student outcomes in order to identify areas for improvement. Such attempts are based on research that leads to student success and closing the achievement gaps.

This Research Brief is part of a series examining recent trends in achievement gaps among first-time in college (FTIC) students in the following indicators of student success: course completion, retention, graduation rates, success in gatekeeper courses, success in developmental courses, and developmental student success in college-level courses.

This Research Brief examines achievement gaps in the rates at which three cohorts of FTIC students, Fall 2012 through Fall 2014, successfully completed gatekeeper courses in their first year (Fall, Spring, and Summer semesters) at NOVA.¹ Gatekeeper courses are college-level (non-developmental) courses that are most commonly required for Associate’s degrees and which are often critical to students’ future success in college. Gatekeeper courses tend to have high enrollments and are often introductory, general education, or prerequisite courses. The gatekeeper course success rate refers to the percentage of students in the course who earn a grade of C or better.² Data is analyzed by enrollment status (full-time or part-time), gender, age, race/ethnicity, and program placement. The following are identified as gatekeeper courses at NOVA.

Gatekeeper Courses	
<ul style="list-style-type: none"> ACC 211: Principles of Accounting I BIO 101: General Biology I ENG 111: College Composition I 	<ul style="list-style-type: none"> MTH 151: Mathematics for the Liberal Arts I MTH 163: Pre-Calculus I

Key Findings
<ul style="list-style-type: none"> All gatekeeper courses showed achievement gaps by age, race, and gender. In general, students who were older, Asian, and female had higher success rates in gatekeeper courses than other students. Three gatekeeper courses (BIO 101, MTH 151, and MTH 163) had achievement gaps by enrollment status, with success rates consistently higher for full-time students than part-time students. Only one gatekeeper course (ACC 211) had an achievement gap by program placement, in which students with A.S. degrees had higher success rates than students with A.A.S. degrees.

¹ OIR originally published the details of this study in “Achievement Gap Analysis Report 8 – Gateway Course Completion by Enrollment Status,” available at: <http://www.nvcc.edu/oir/files/GatekeeperSuccessRates3-16-16.pdf>.

² Missing grades and audits are excluded.

Section 1. Overall Gatekeeper Course Success Rates

Table 1 shows the overall rates of successful course completion for FTIC students in the Fall 2012 through Fall 2014 cohorts. Overall, success rates increased in all gatekeeper courses from Fall 2012 to Fall 2014, with the greatest increase in MTH 151 and MTH 163 (6 percentage points each) and the smallest in ACC 211 (less than 1 percentage point). Success rates were highest in ENG 111 (an average of 77 percent) and lowest in MTH 163 (an average of 57 percent).

Table 1. Gatekeeper Course Success Rates of FTIC Students: Fall 2012 through Fall 2014 Cohorts

Gatekeeper Course	Fall 2012 Cohort			Fall 2013 Cohort			Fall 2014 Cohort		
	Total Enrolled	Successful		Total Enrolled	Successful		Total Enrolled	Successful	
		#	%		#	%		#	%
ACC 211	817	524	64.1%	660	422	63.9%	617	399	64.7%
BIO 101	1,886	1,342	71.2%	2,163	1,506	69.6%	1,862	1,377	74.0%
ENG 111	6,136	4,696	76.5%	6,556	4,941	75.4%	8,747	6,902	78.9%
MTH 151	1,343	894	66.6%	1,314	888	67.6%	1,283	930	72.5%
MTH 163	1,444	784	54.3%	1,594	924	58.0%	1,762	1,057	60.0%

Section 2. Achievement Gaps in ACC 211: Principles of Accounting I

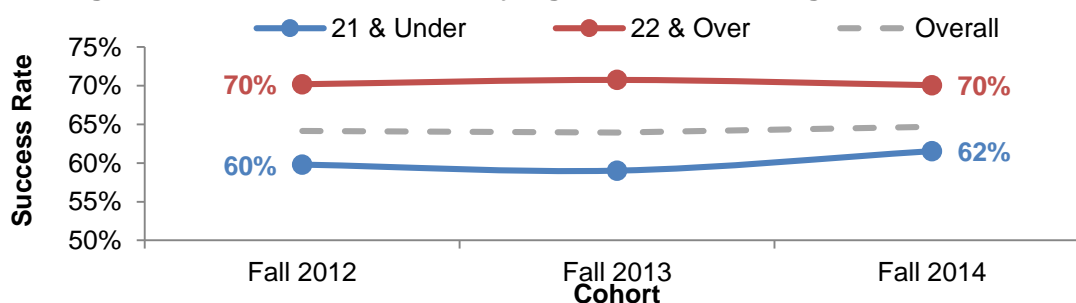
The number of FTIC students enrolled in ACC 211 was the lowest of all five gatekeeper courses. Of those students, around 64 percent earned a grade of C or better in the course.

Data on ACC 211 shows achievement gaps by gender, age, race, and program placement. From Fall 2012 to Fall 2014, the achievement gap by age, race, gender, and program placement decreased. Although there were differences in success rates by enrollment status, these varied across cohorts and did not reflect a consistent achievement gap between full- and part-time students.

Age

- Relative to other gatekeeper courses, ACC 211 had a larger proportion of older students. Students ages 22 and up comprised around 40 percent of ACC 211 students. In contrast, only 6 to 14 percent of students in the other gatekeeper courses were ages 22 and up.
- As shown in Figure 1, older students (ages 22 and over) consistently had higher success rates in ACC 211 than students age 21 and under. While 70 percent of older students earned a grade of C or better, only around 60 percent of students age 21 and under did so.

Figure 1. Success in ACC 211 by Age: Fall 2012 through Fall 2014 Cohorts



Race/Ethnicity

- An average of 73 percent of Asian students earned a C or better in ACC 211, compared to 59 percent of Black students. This achievement gap decreased from Fall 2012 to Fall 2014, as Asian students' success rate decreased from 77 to 71 percent, while that of Black students remained the same (56 percent).
- Hispanic students' success in ACC 211 increased from 55 percent to 61 percent over the three cohorts, but remained lower than that of both Asian and White students.

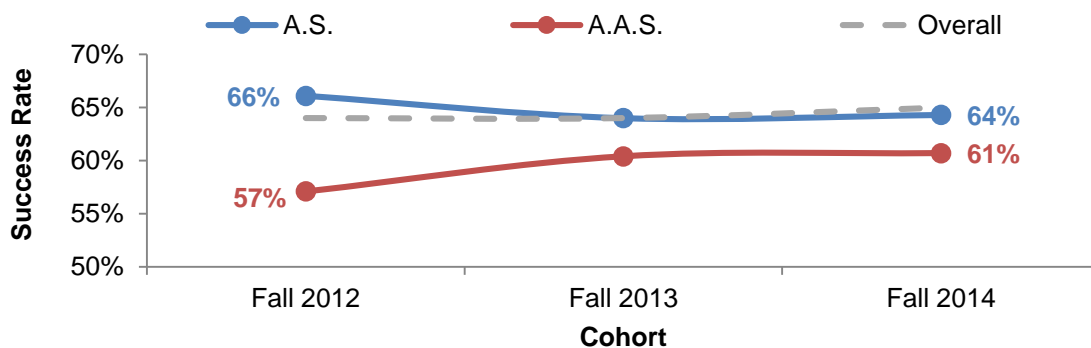
Gender

- An average of 67 percent of female students earned a C or better in ACC 211, compared to 62 percent of male students.

Program Placement

- More than half of ACC 211 students were enrolled in A.S. programs, and an additional 30 percent were enrolled in A.A.S. programs.
- A.S. students consistently had higher success rates in ACC 211 (around 65 percent) compared to A.A.S. students (around 59 percent).
- This achievement gap narrowed from a difference of 9 percentage points in Fall 2012 to 4 percentage points in Fall 2014 (Figure 2).

Figure 2. Success in ACC 211 by Program Placement: Fall 2012 through Fall 2014 Cohorts



Section 3. Achievement Gaps in BIO 101: General Biology I

Approximately 2,000 FTIC students enrolled in BIO 101 in each cohort from Fall 2012 to Fall 2014. Of those students, an average of 72 percent earned a C or better in the course. There were achievement gaps by enrollment status, age, race/ethnicity, and gender. From Fall 2012 to Fall 2014, the achievement gap between full- and part-time students increased, as did the gaps by race and gender. The age gap decreased. There were no clear achievement gaps by program placement.

Enrollment Status

- The achievement gap between full-time and part-time students in BIO 101 increased from Fall 2012 to Fall 2014, as full-time success rates increased from 72 to 76 percent, while part-time success rates decreased from 70 to 68 percent.

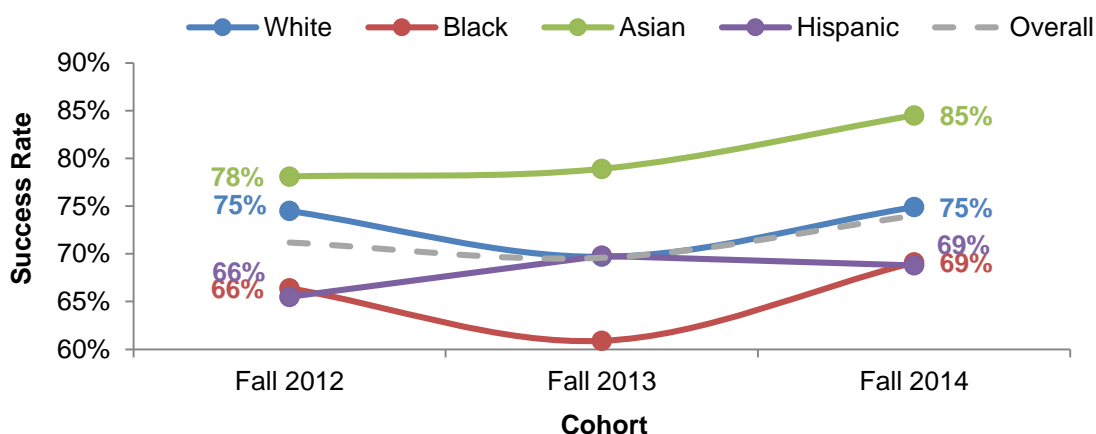
Age

- Older students (ages 22 and over) consistently had higher success rates (an average of 77 percent) in BIO 101 than students age 21 and under (an average of 71 percent).
- The achievement gap narrowed slightly over time, from a 5 percentage point gap in Fall 2012 to a difference of 3 percentage points in Fall 2014.

Race/Ethnicity

- Asian students consistently had the highest success rates in BIO 101 (an average of 81 percent), followed by White students (approximately 73 percent). Black students and Hispanic students had similar success rates, averaging 65 and 68 percent respectively, which were generally lower than the overall rate.
- Overall, the achievement gap between Asian students and Black or Hispanic students increased from a difference of 12 percentage points in Fall 2012 to 15 percentage points in Fall 2014.

Figure 3. Success in BIO 101 by Race/Ethnicity: Fall 2012 through Fall 2014 Cohorts



Gender

- Female students had consistently higher success rates in BIO 101 than male students.
- The achievement gap increased slightly across cohorts, from a 4 percentage point difference to a 5 percentage point difference.

Section 4. Achievement Gaps in ENG 111: College Composition I

ENG 111, the largest gatekeeper course, enrolled roughly 6,100 to 8,700 students in each cohort. ENG 111 also had the highest success rates of any gatekeeper course, with an average of 77 percent of students earning a grade of C or better.

There were achievement gaps in ENG 111 success by age, race/ethnicity, and gender. From Fall 2012 to Fall 2014, the achievement gap by age stayed the same, while the gaps by race/ethnicity and gender both increased. There was not a clear achievement gap by enrollment status across the three cohorts examined. There were also no notable achievement gaps by program placement, as success rates for all groups ranged from 72 to 77 percent. The majority of ENG 111 students (roughly 73 percent of each cohort) were enrolled in an A.A. or A.S. degree program.

Age

- The overall average ENG 111 success rates were higher for older students (79 percent) compared to students age 21 and under (77 percent) across the three cohorts.

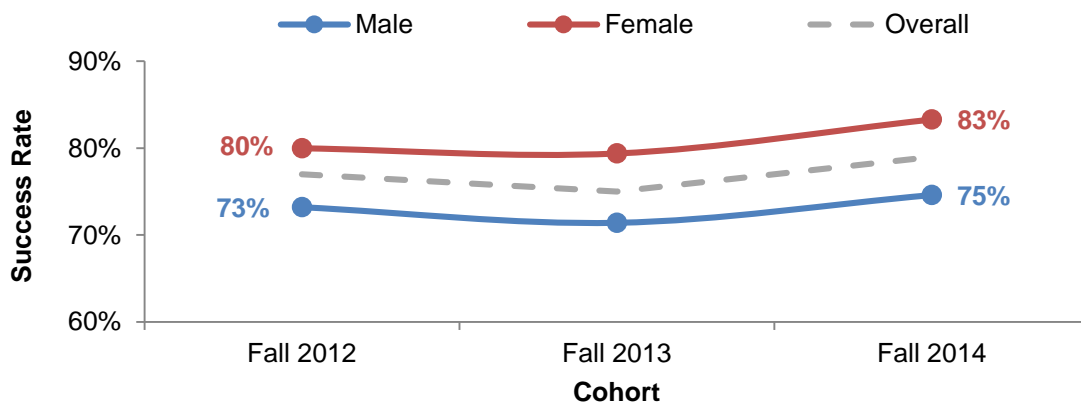
Race/Ethnicity

- Asian students consistently had the highest success rates in ENG 111 (around 84 percent), while Black students had the lowest (72 percent).
- This achievement gap increased from a 10 percentage point difference in Fall 2012 to a difference of 14 percentage points in Fall 2014, as Asian students' success rates increased and Black students' rates decreased slightly.

Gender

- As shown in Figure 4, although success rates in ENG 111 improved for both male and female students from Fall 2012 to Fall 2014, female students consistently had higher success rates (an average of 81 percent) than male students (and average of 73 percent).

Figure 4. Success in ENG 111 by Gender: Fall 2012 through Fall 2014 Cohorts



Section 5. Achievement Gaps in MTH 151: Mathematics for the Liberal Arts I

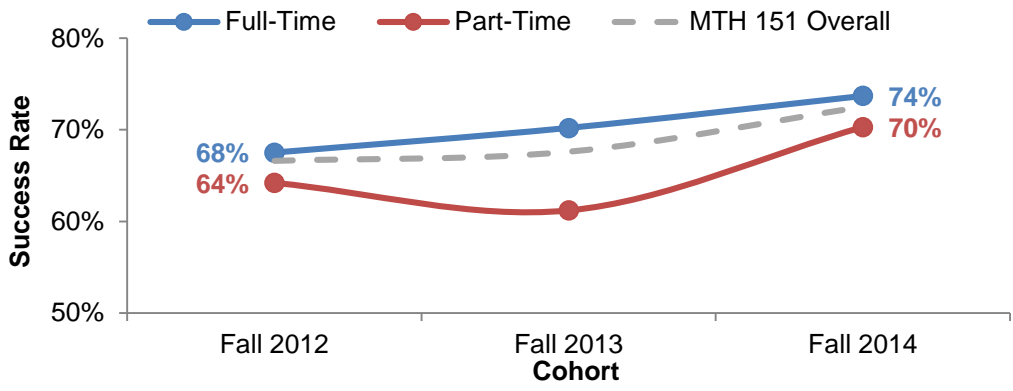
Around 1,300 students enrolled in MTH 151 in each cohort, of whom an average of 69 percent were successful.

There were achievement gaps in MTH 151 by enrollment status, age, race/ethnicity, and gender. From Fall 2012 to Fall 2014, the achievement gap between full- and part-time students stayed the same, the age gap increased, and the race and gender gaps both decreased. No clear pattern of achievement gaps by program placement could be determined across the three cohorts.

Enrollment Status

- There was a clear achievement gap in MTH 151 by enrollment status. Although success rates improved by 6 percentage points from Fall 2012 to Fall 2014 for both full- and part-time students, full-time students had success rates 4 to 9 percentage points higher than part-time students in each cohort.

Figure 5. Success in MTH 151 by Enrollment Status: Fall 2012 through Fall 2014 Cohorts



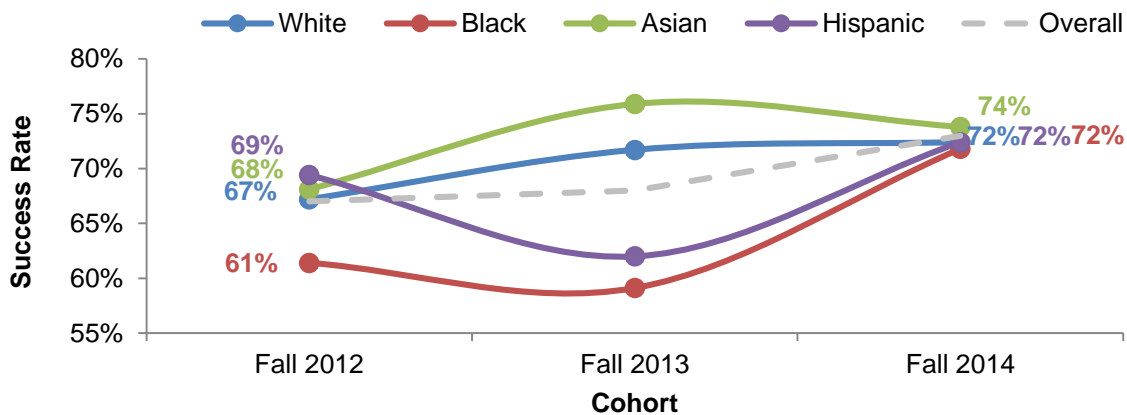
Age

- As in other gatekeeper courses, students ages 22 and over were more likely to succeed in MTH 151 than students age 21 and under.
- In addition, older students’ success rates increased by 9 percentage points (from 75 to 84 percent), while those of younger students increased by 5 percentage points, from 66 percent to 71 percent.

Race/Ethnicity

- The achievement gap by race/ethnicity in MTH 151 decreased considerably from Fall 2012 to Fall 2014 (Figure 6). In Fall 2012, MTH 151 success rates were similar for all racial/ethnic groups except Black students (at 61 percent, 6 to 8 percentage points lower than other racial/ethnic groups). By Fall 2014, however, Black, Hispanic, and White students all succeeded in MTH 151 at a rate of 72 percent, and Asian students’ success rate was only 2 percentage points higher, at 74 percent.

Figure 6. Success in MTH 151 by Race/Ethnicity: Fall 2012 through Fall 2014 Cohorts



Gender

- Although female students’ success rates in MTH 151 were consistently higher than those male students’, the achievement gap decreased over time, from a difference of 11 percentage points in Fall 2012 to 9 percentage points in Fall 2014.
- Female students’ success rates increased by 4 percentage points (from 72 to 76 percent), while male students’ increased 7 percentage points (from 61 to 68 percent) over the same time period.

Section 6. Achievement Gaps in MTH 163: Pre-Calculus I

On average, 1,600 students enrolled in MTH 163 in each cohort, of whom around 58 percent earned a grade of C or better – the lowest success rates of any gatekeeper course.

In this course, there were achievement gaps by enrollment status, age, race/ethnicity, and gender. From Fall 2012 to Fall 2014 the achievement gap between full- and part-time students increased slightly, the age gap decreased, and the gender gap stayed the same. The achievement gap between Asian and Black students increased slightly, while the gap between White and Black students decreased.

There were no achievement gaps by program placement. The vast majority of MTH 163 students (77 to 88 percent) were enrolled in an A.S. degree program. The number of students enrolled in other degree or certificate programs was too small to make accurate comparisons, thus no achievement gaps by program placement were found.

Enrollment Status

- There was a clear achievement gap in MTH 163 by enrollment status. Success rates improved from Fall 2012 to Fall 2014 for both full- and part-time students, full-time students had success rates 6 to 14 percentage points higher than part-time students in each cohort.

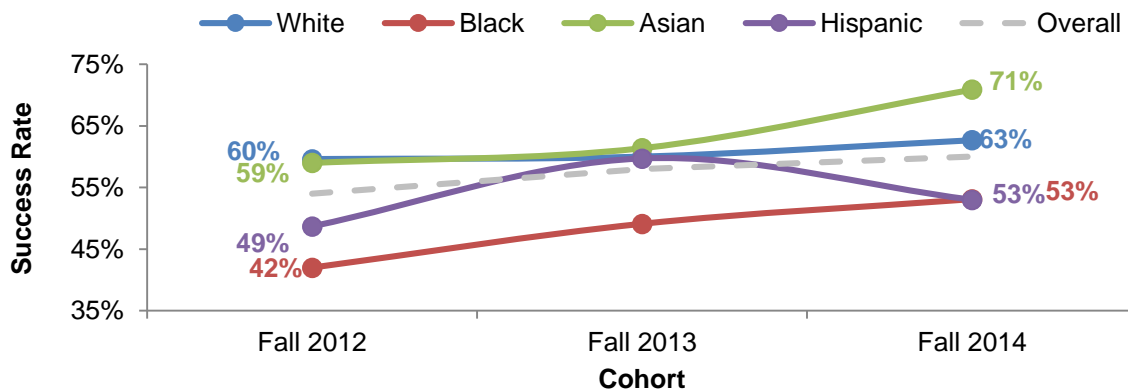
Age

- Students ages 22 and over had consistently higher success rates in MTH 163 (an average of 74 percent) than students age 21 and under (56 percent). However, the percentage of older students in MTH 163 was relatively small, only 6 to 7 percent of each cohort.

Race/Ethnicity

- As shown in Figure 7, MTH 163 success rates improved for all racial/ethnic groups from Fall 2012 to Fall 2014, with Asian students seeing the largest increase (from 59 percent to 71 percent), followed by Black students (from 42 percent to 53 percent).
- By Fall 2014, Black students had the same success rate as Hispanic students (53 percent) although this was still 18 percentage points lower than that of Asian students.
- The achievement gap between White and Black students decreased, from an 18 percentage point gap in Fall 2012 to a 10 percentage point gap in Fall 2014.

Figure 7. Success in MTH 163 by Race/Ethnicity: Fall 2012 through Fall 2014 Cohorts



Gender

- There was a 10 percentage point achievement gap between the success rates of male and female students in MTH 163 that persisted across all cohorts. Sixty-three percent of female students earned a C or better in MTH 163 compared to 53 percent of male students.

Section 7. Discussion of Findings

Overall, the data in this Research Brief reveals a number of achievement gaps among FTIC students in terms of successful completion of gatekeeper courses in the first year. Students who were ages 22 and over, Asian, and female were more likely to be successful in all gatekeeper courses than other students. Full-time students were more likely to be successful in BIO 101, MTH 151, and MTH 163. Students in A.S. degree programs were more likely to be successful in ACC 211 than students in A.A.S. programs.

Many of these findings mirror national trends. Current research consistently shows that male persistence and achievement lags behind that of female students.³ The gender gap is most pervasive among Black students, with Black female students earning 68 percent of all associate degrees awarded to Black students.⁴ In addition, national data shows that Black and Hispanic students trail Asian and White students on a number of student success metrics. As of 2008, only 30 percent of African Americans and 20 percent of Latinos between the ages of 25 and 34 had attained an associate degree or higher compared to 49 percent of White students and 71 percent of Asian students.⁵

Closing Achievement Gaps at NOVA

NOVA's Start Strong policy changes, launched in Fall 2014, were based on recommendations from the ATD Core Team. Such policy changes are expected to help in closing achievement gaps. For example, NOVA's orientation, advising, and Student Development course policies provide targeted interventions for FTIC students ages 17 to 24 through the GPS for Success program. The goal of GPS for Success is to help students succeed in college by fostering connections with professional advisors and faculty who will help students plan for and attain their academic goals. One of ATD's six capacity areas for student success which is equity was used as a framework for a faculty-led pilot on teaching and learning that promotes equitable outcomes for all students.

The Survey of Entering Student Engagement (SENSE) provides additional insight into how NOVA might approach closing achievement gaps. SENSE provides benchmark data in several areas that can help NOVA understand students' critical early experiences and improve policies and practices that affect student success in the first year. Results of the 2015 SENSE indicated that, relative to other community colleges nationwide, NOVA is underperforming in the "High Expectations and Aspirations", "Engaged Learning," and "Academic and Social Support Network" benchmarks. NOVA must continue to explore the implications of these benchmark scores and identify intervention strategies to help boost student success.

In addition, NOVA faculty on ATD teams are currently examining strategies to improve equity in the classroom through teaching and learning. Future research on achievement gaps at NOVA should take a comprehensive approach to data analysis by triangulating NOVA student data along with surveys, focus groups, and outside research on community college best practices for FTIC students.

³ Lee, J. M., & Ransom, T. (2011). The educational experience of young men of color: A review of research, pathways, and progress. Retrieved from College Board website: <http://youngmenofcolor.collegeboard.org/sites/default/files/downloads/EEYMCResearchReport.pdf>.

⁴ Center for Community College Student Engagement. (2014). Comprehensive Fact Sheet: Men of Color in Higher Education. Retrieved from: http://www.ccsse.org/docs/MoC_Long_Fact_Sheet.pdf?ts=20170113182911.

⁵ Lee & Ransom 2011.