

Statistical Observations and Areas of Further Research for Sampson County Schools

Emily Hadley
College Adviser
Hobbs High School
BS Statistics – Duke 2015

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Academics

GPA OBSERVATIONS

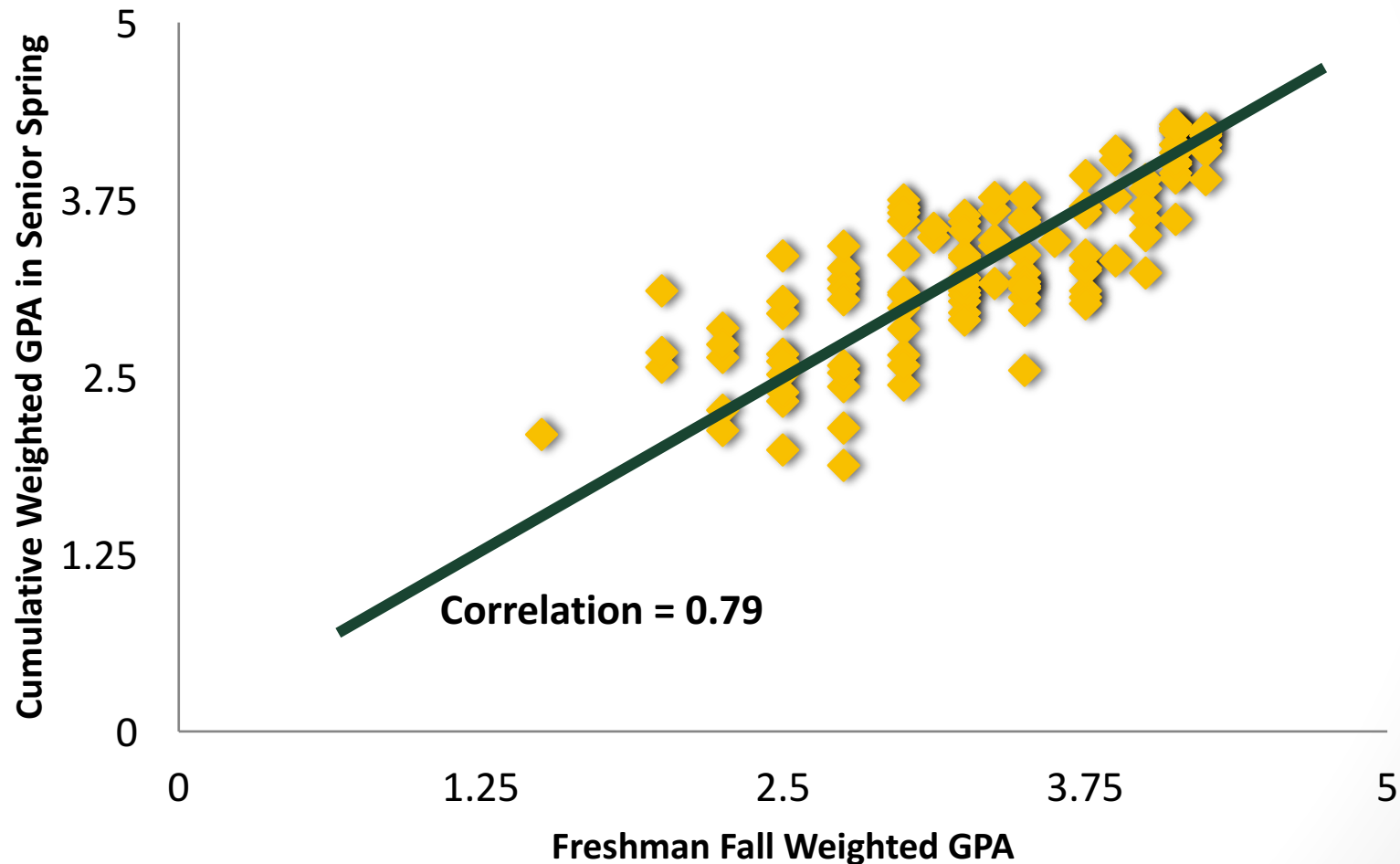
Analysis of HHS Class of 2016

Analysis of every semester GPA for the Class of 2016 at Hobbton High. To be included, the student must have started at Hobbton in 2012 and graduated from Hobbton in 2016 but could have been absent for a semester or year.

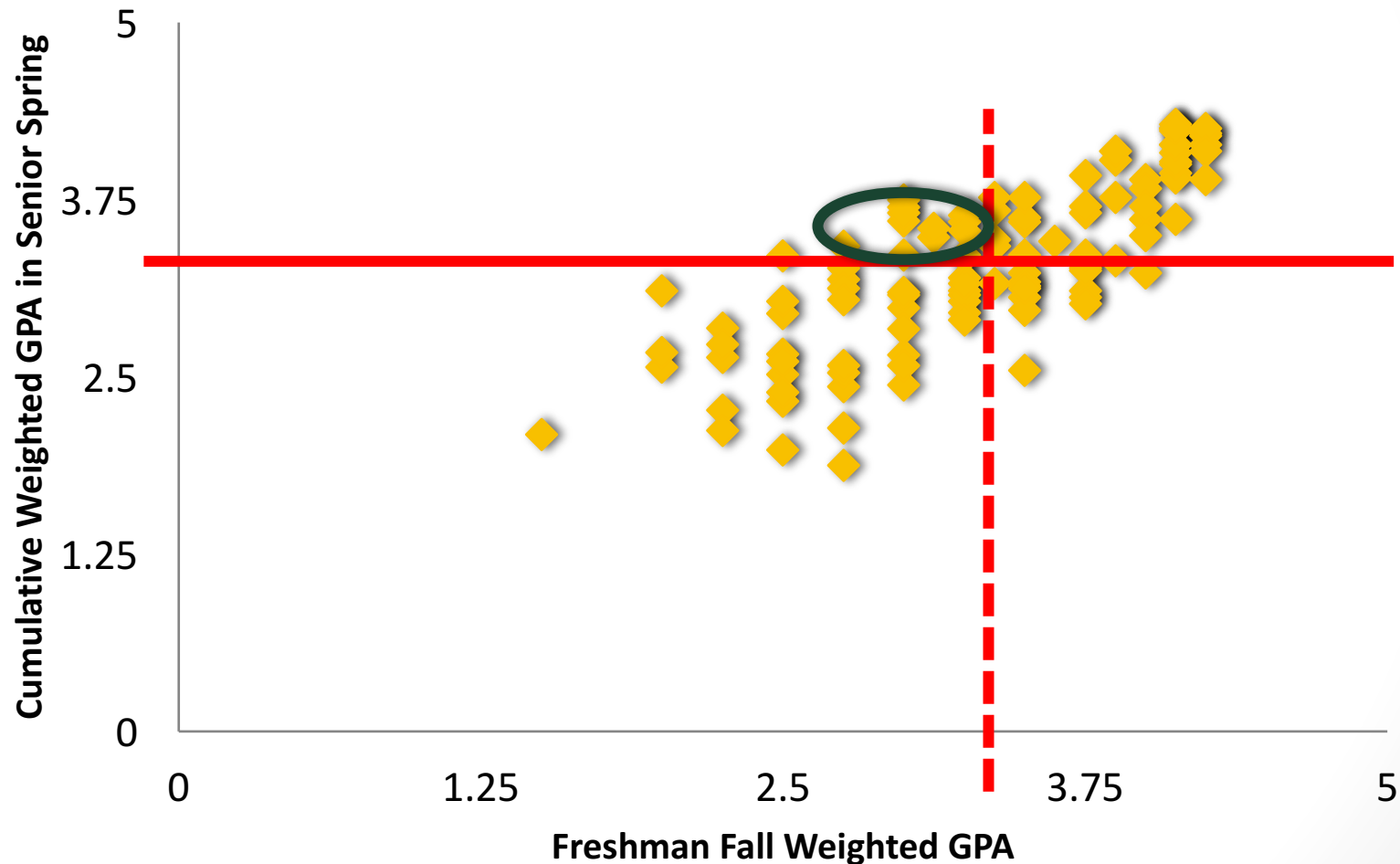
	Black	Hispanic	White	TOTAL
Female	9	24	27	60
Male	11	16	22	49
TOTAL	20	40	49	119

The population is large enough to consider all races and sexes independently (ie Black OR Female), but not simultaneously (ie Black AND Female).

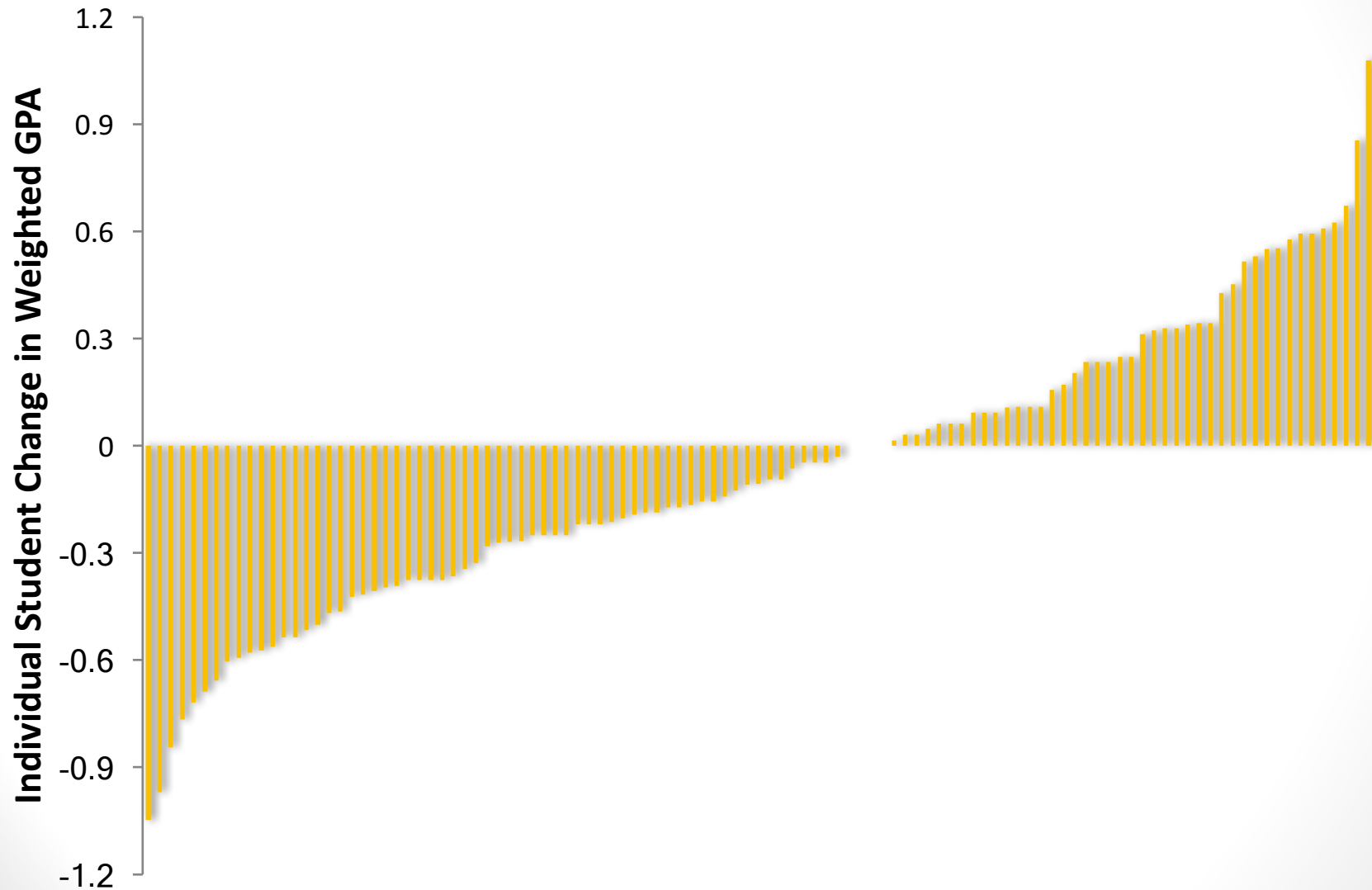
There is a strong positive relationship between freshman fall weighted GPA and cumulative weighted GPA at HHS



Only 7% of HHS students with below a 3.5 weighted GPA in freshman fall finish with above a 3.5 weighted GPA

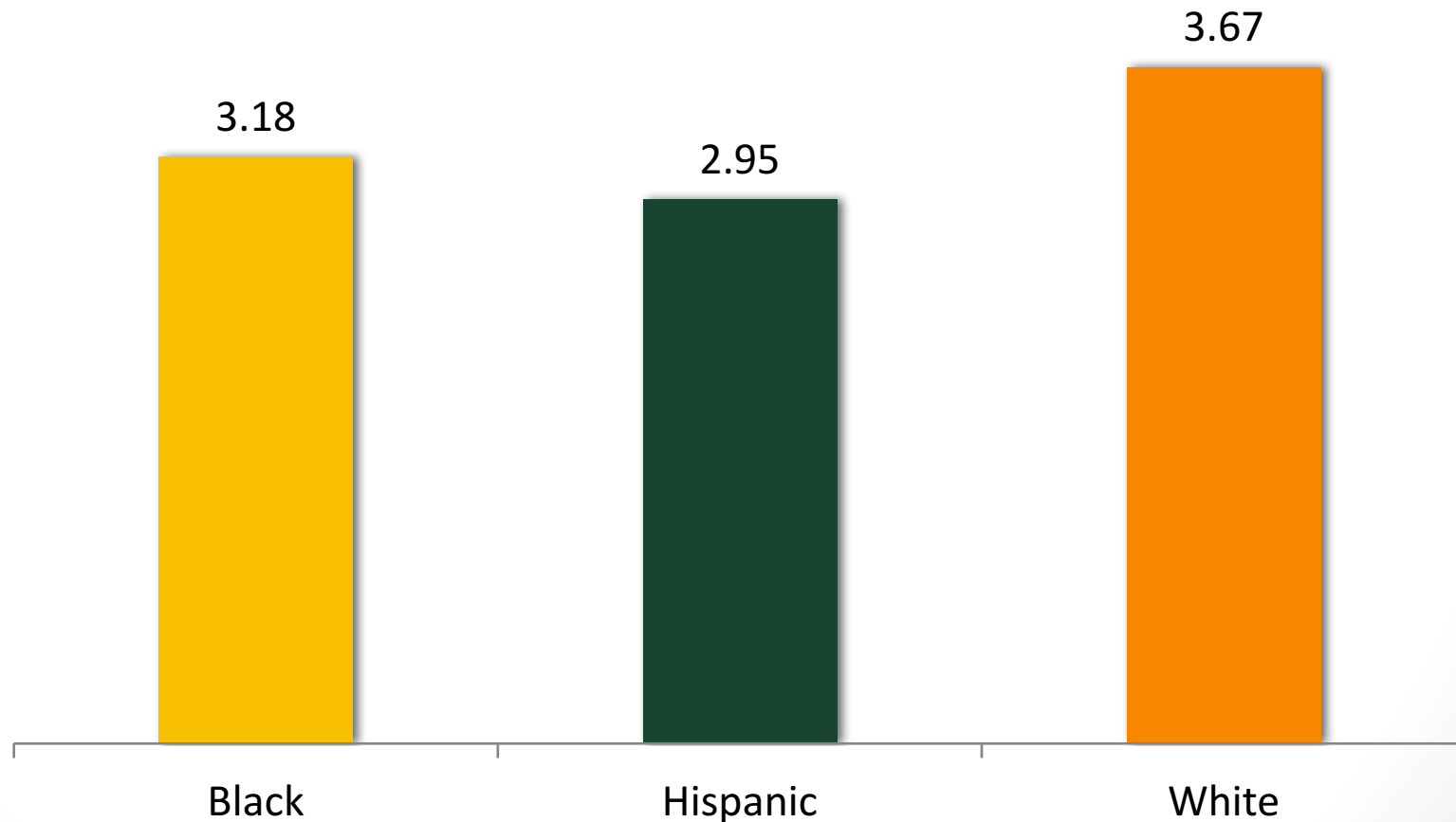


More students saw their weighted GPA decrease from freshman fall to senior spring



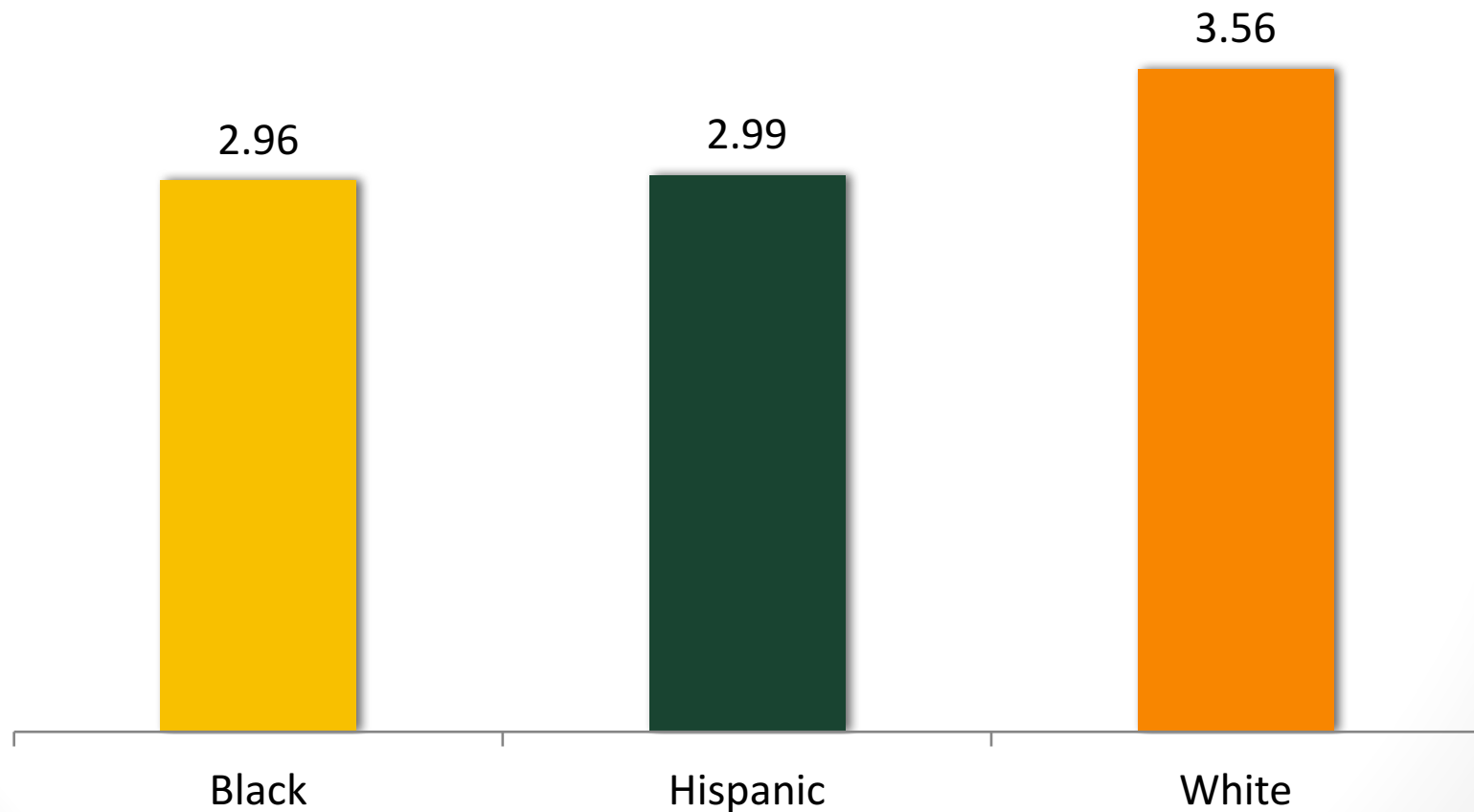
Differences by race and ethnicity have already emerged at the end of freshman fall

Freshman Fall Average Weighted GPA



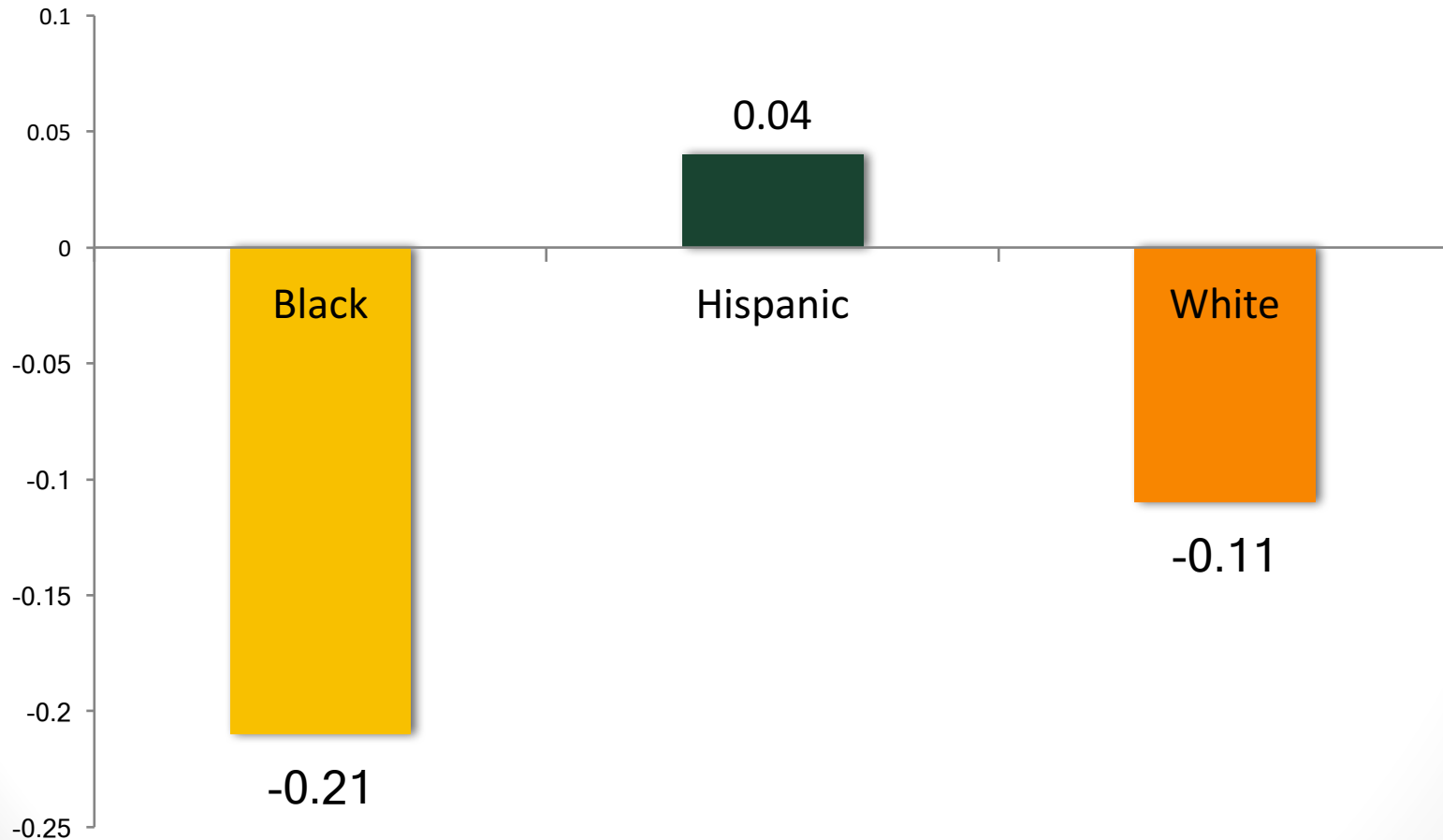
These differences persist through senior year

Average Cumulative Weighted GPA



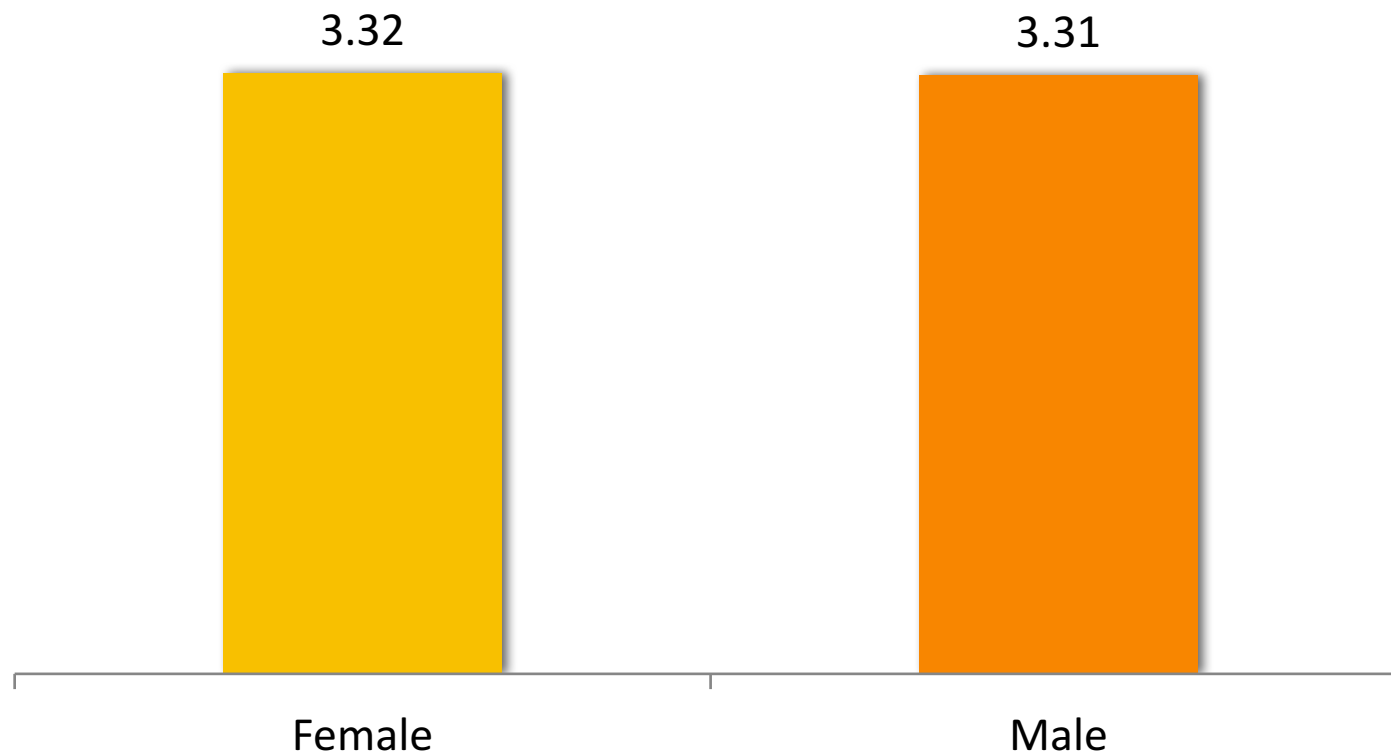
Latinx students generally have the most GPA growth, while the GPA of Black students generally decrease

Average Growth in Weighted GPA During High School



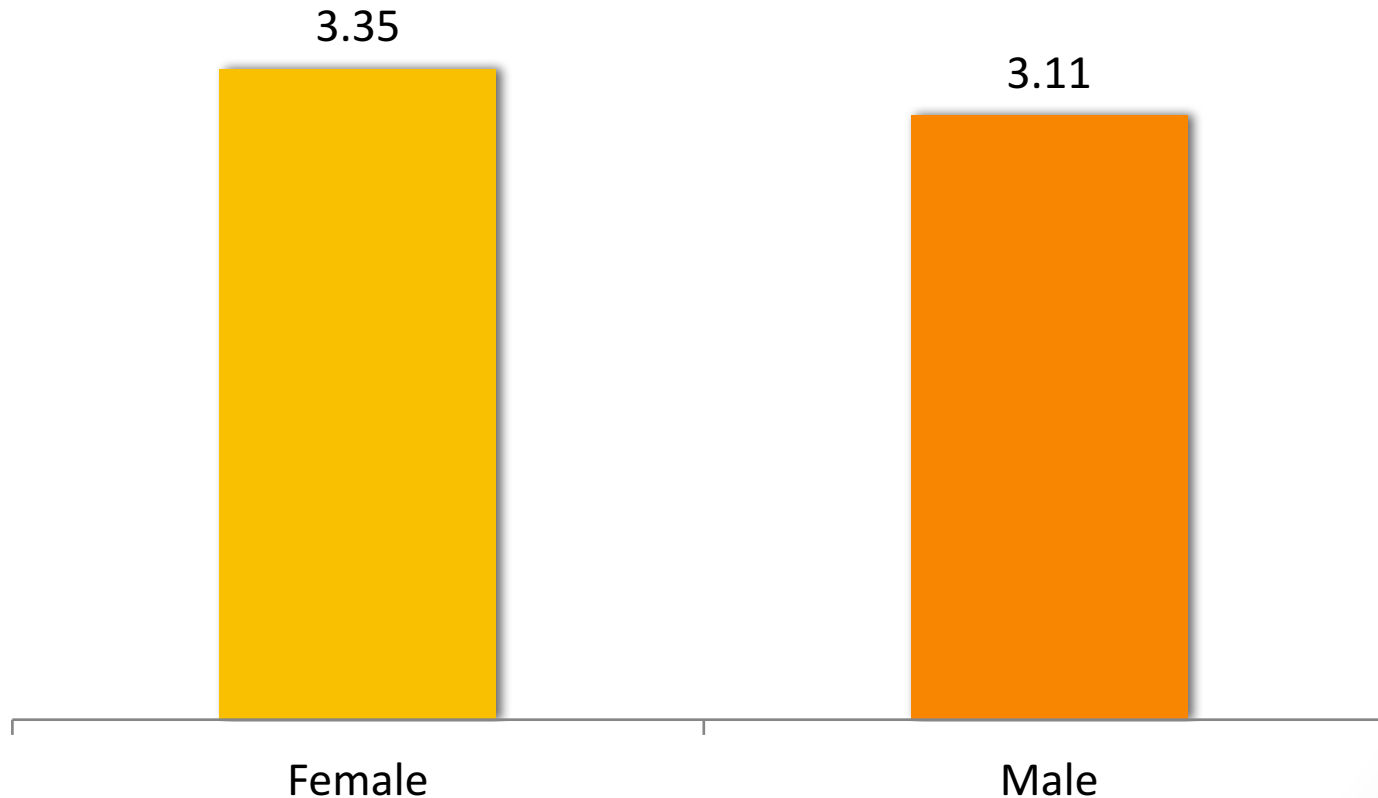
At the end of freshman fall, there is almost no difference between GPA by sex

Average Freshman Fall Weighted GPA

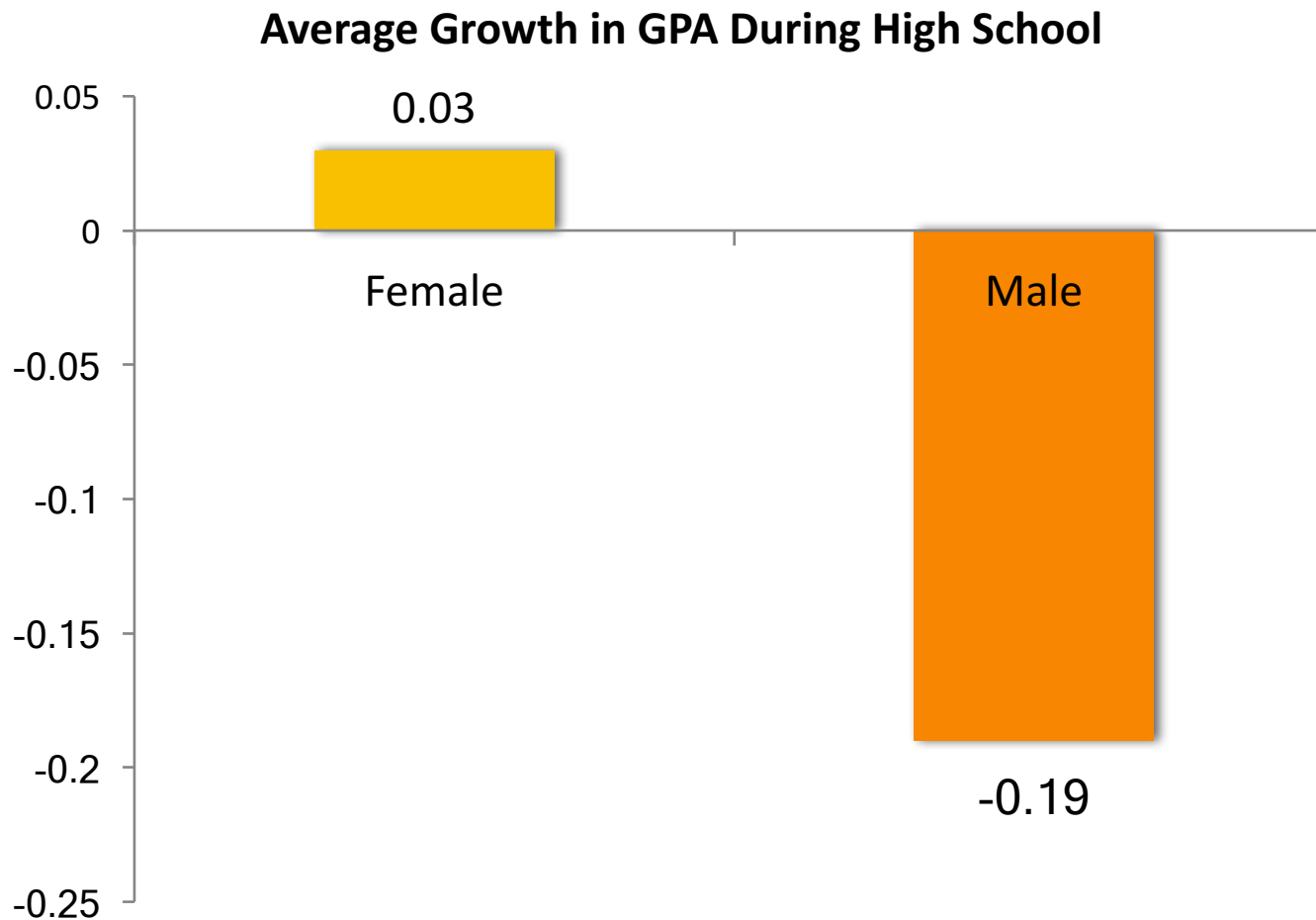


But by the end of senior year, the average GPA of male students has gone down

Average Cumulative Weighted GPA



To emphasize the significance of this change:



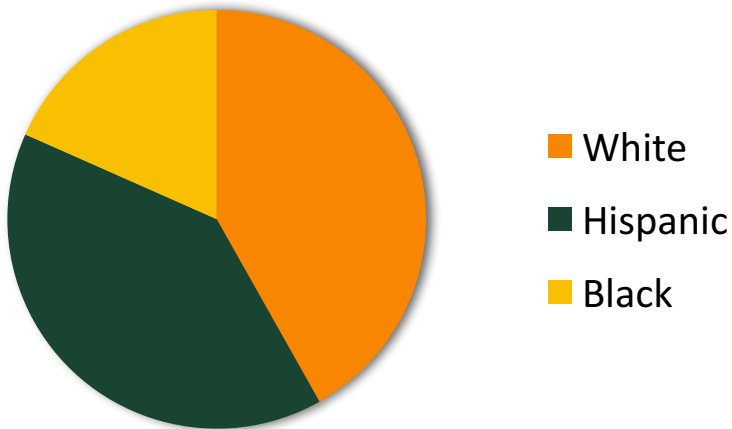
Honors, AP, and College Classes can bring up a weighted GPA, but the distribution is uneven

	Average # of Honors Classes	Average # of AP and College Classes
Black	2.75	0.1
Hispanic	3.2	0.38
White	4.85	1.43

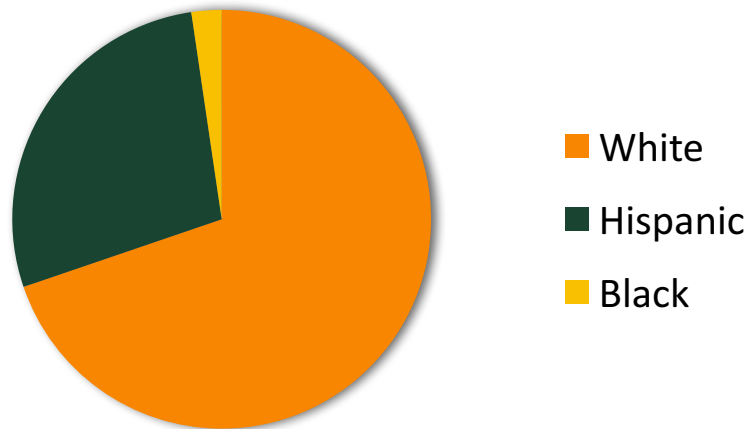
	Average # of Honors Classes	Average # of AP and College Classes
Female	4.22	1.03
Male	3.43	0.51

The discrepancy is particularly large in AP and college classes (including college CTE classes)

HHS Student Body



Students in AP & College Classes



Further Research Questions

- What types of factors are contributing to the large GPA discrepancy, especially for Latinx students, at the end of freshman fall? What can be done to mitigate these?
- Why are Latinx students the only group to see average growth in GPA? Why do Black students see such a large decrease? What programs are helping those students who do grow?
- Why do males see such a large decrease? Why don't both groups see more of an increase?

Trends to Investigate

- Male students of color appear to be the ones most likely to see a GPA decrease (need larger sample to confirm)
- Students seem to do poorly in their fourth period classes, particularly when their fourth period class is a core class

Academics

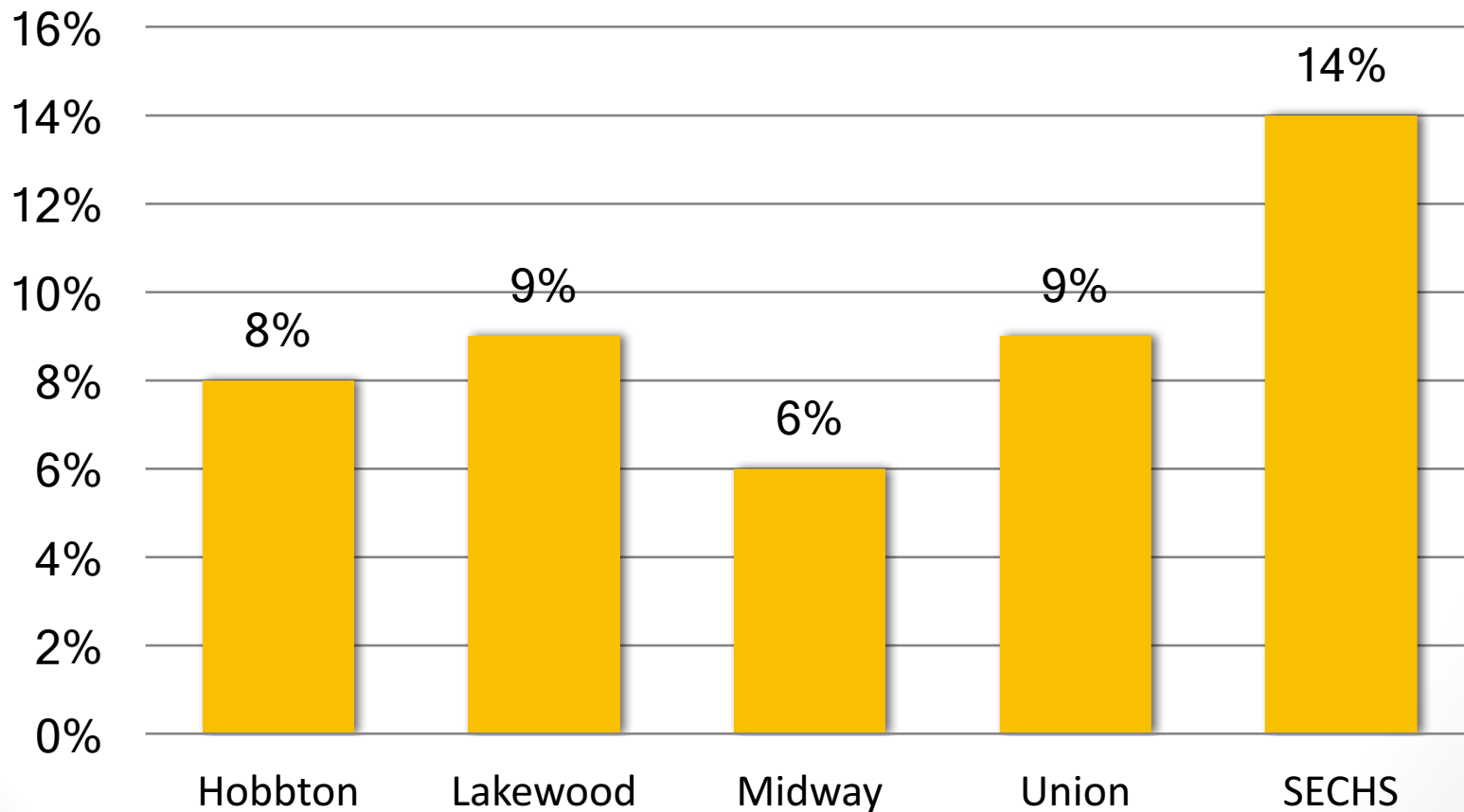
LATIN HONORS

Context

- Policies that brought us to the table:
 - 10 Point Scale
 - Quality Point Scale
 - New CTE Honors
- Levels of Recognition:
 - Cum Laude
 - Magna Cum Laude
 - Summa Cum Laude
- **Key Objectives: increase the number of students recognized at graduation for their academic efforts without creating a trivial honor**

Current Top 10 System

Percent of Seniors Who are Recognized



Implementation: Option A

- Cum Laude = 3.5 – 3.7
*3.5 – 3.799
- Magna Cum Laude = 3.8 – 3.9
*3.8 – 3.999
- Summa Cum Laude = 4.0 +

Implementation: Option B

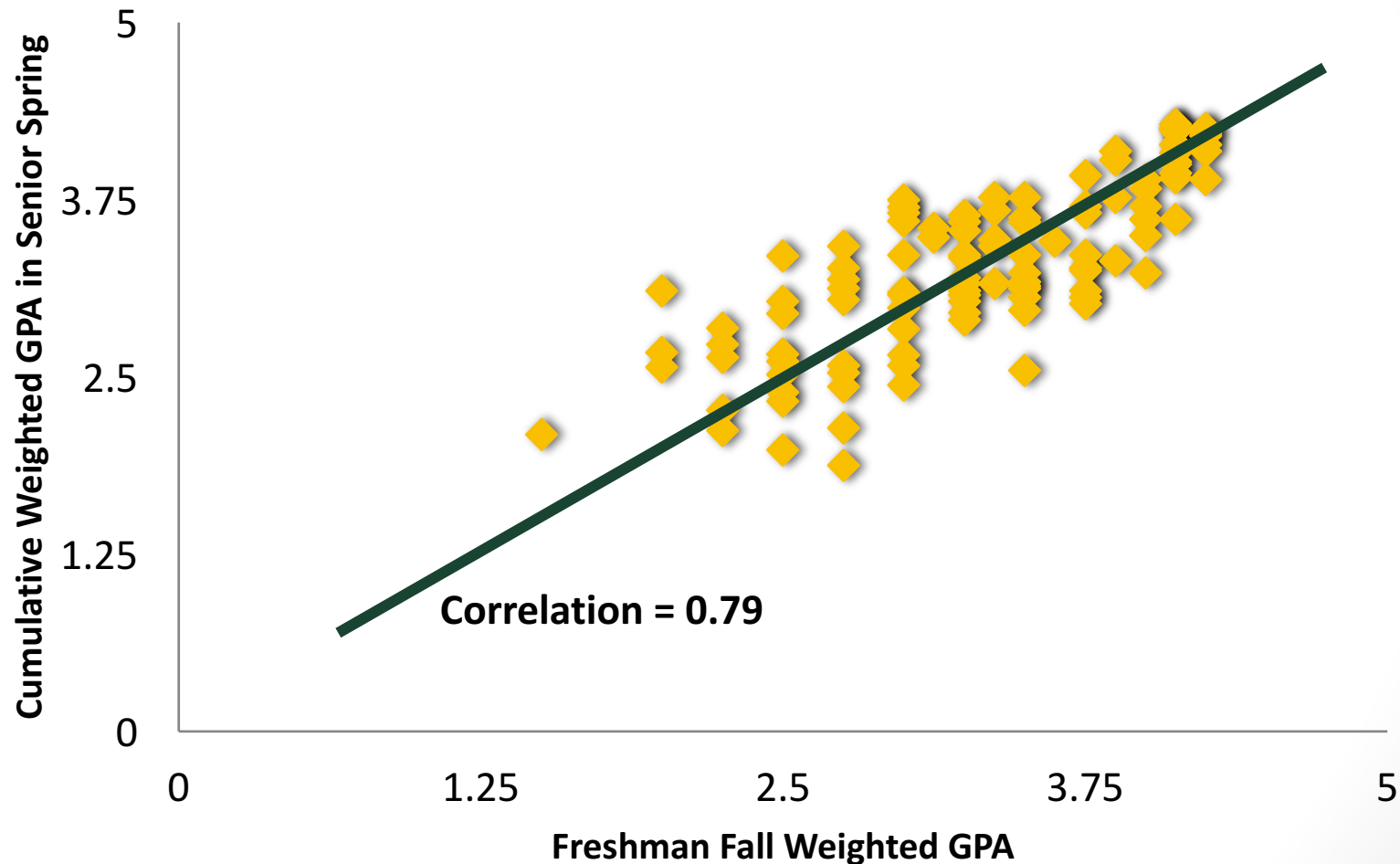
- Cum Laude = $3.7 - 3.999$
- Magna Cum Laude = $4.0 - 4.299$
- Summa Cum Laude = $4.3 +$

Can We Predict What Will
Happen for the Class of 2019?

To build a predictive statistical model,
freshman fall GPAs must have a clear
statistical relationship with cumulative
senior spring GPAs

Is this true for Sampson County
students?

There is a strong positive relationship between freshman fall weighted GPA and cumulative weighted GPA at HHS



We can figure this out using the
Class of 2016

Assume that all new policies and
Latin Honors had been put in place
starting freshman year for the Class
of 2016...

Details of the Process

- Used Excel to calculate every semester GPA for every HHS senior in the Class of 2016 with the new policies
 - So for a student who was at the same high school for all four years, this is 8 semesters
 - Includes data from Spring 2016 semester through the most recent grading period
 - Assumed all CTE courses that can now receive honors did so, so this is the highest possible GPA a student could now get
- Theoretically, every school in the district is awarding the same distribution of grades (ie it is equally as challenging to get an A at one school as it is at all of the other schools), so the GPA distributions should be similar

Since there is a strong relationship, we can build a predictive statistical model...

Step 1: Build a Model for Predicting
Class of 2016 Cumulative GPAs based on
Class of 2016 Freshman Fall GPAs

Step 2: Input Class of 2019 Freshman
Fall GPAs into this model to predict Class
of 2019 Senior Spring GPAs

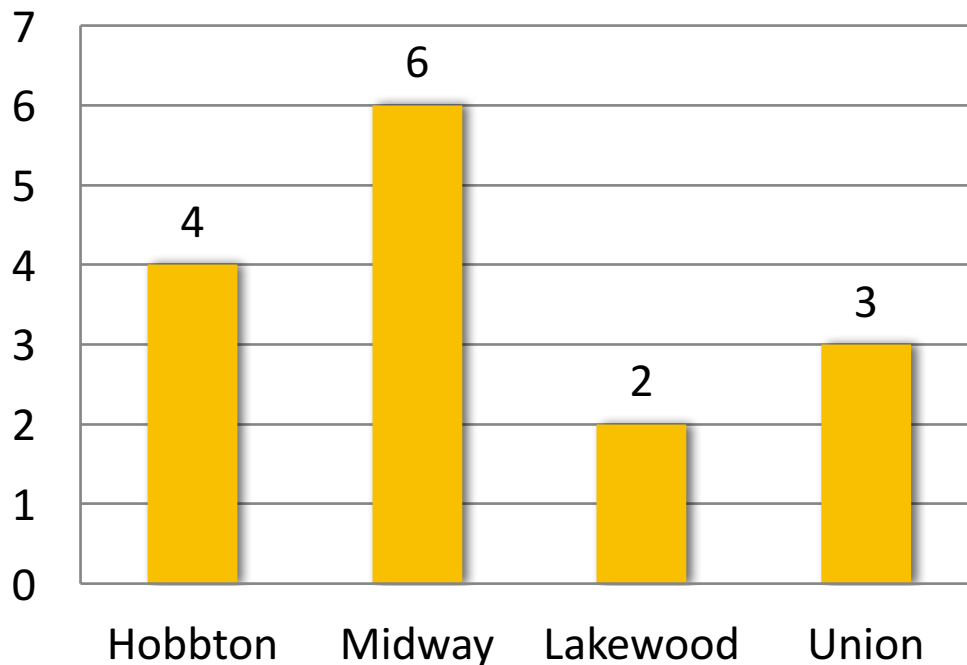
****With adjustments for AP Classes****

Building the Predictive Model

- The model combines linear regression and stratified analysis
- The model also incorporates expected graduation rates and the current population growth seen at MHS, UHS, and LHS
- Ms. Hadley would be happy to go into more detail for anyone who is interested

Why Adjust for AP Classes/College Classes

**Number of AP Classes Currently
Taught**



An AP or College Class Adds
1 Quality Point in a Given
Semester

While the number of
honors courses are similar
between schools, the
number of AP courses are
not

**Not shown on the graph:
SECHS students take 20 –
22 classes at SCC**

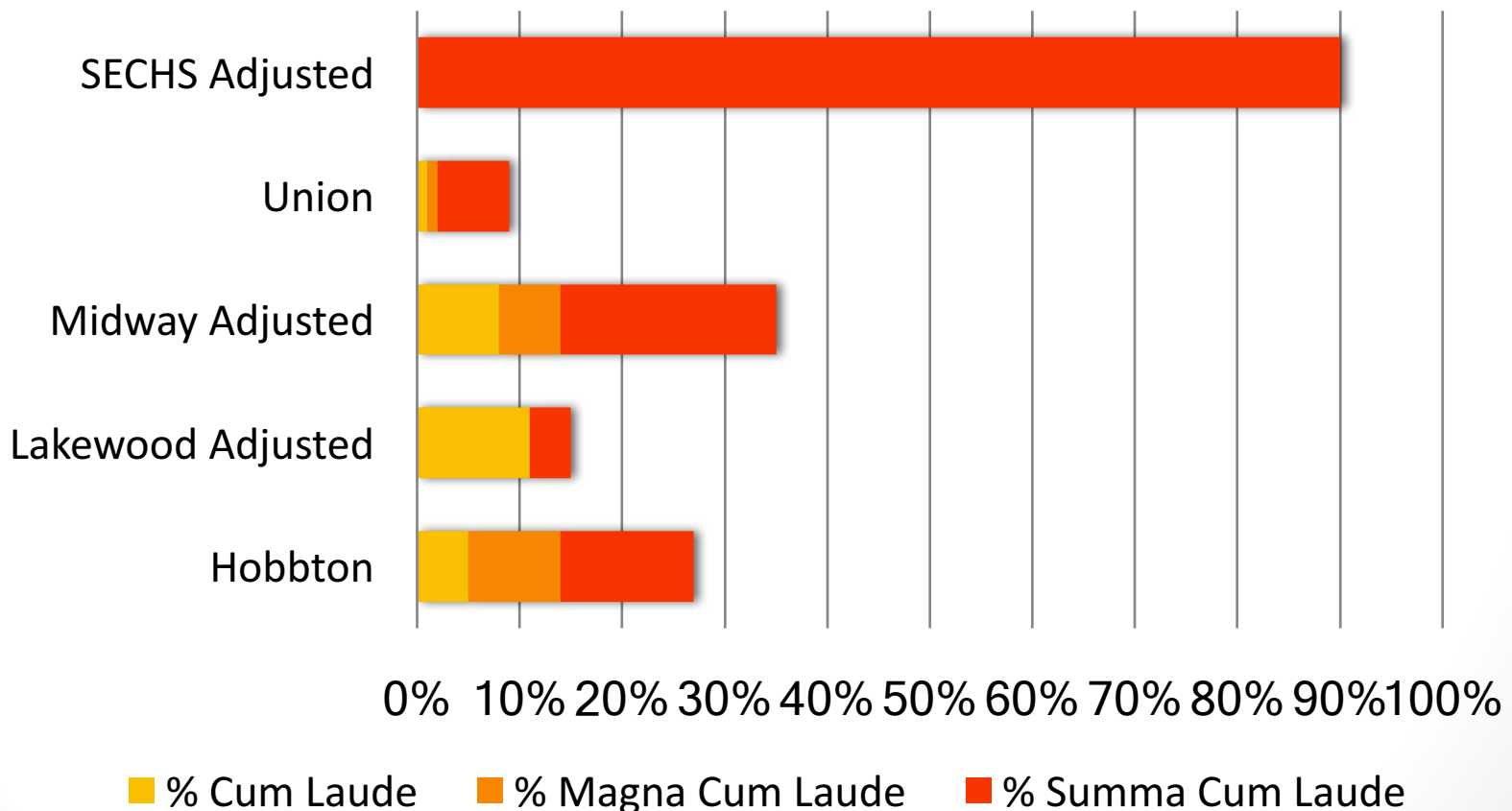
Adjustments made in Analysis

Predictions are originally based on students at HHS, so:

- Predict an average of one more AP class for the Top 20% of students at MHS
- Predict an average of one fewer AP class for the Top 20% of students at LHS
- Predict an average of 20 more college classes for students at SECHS

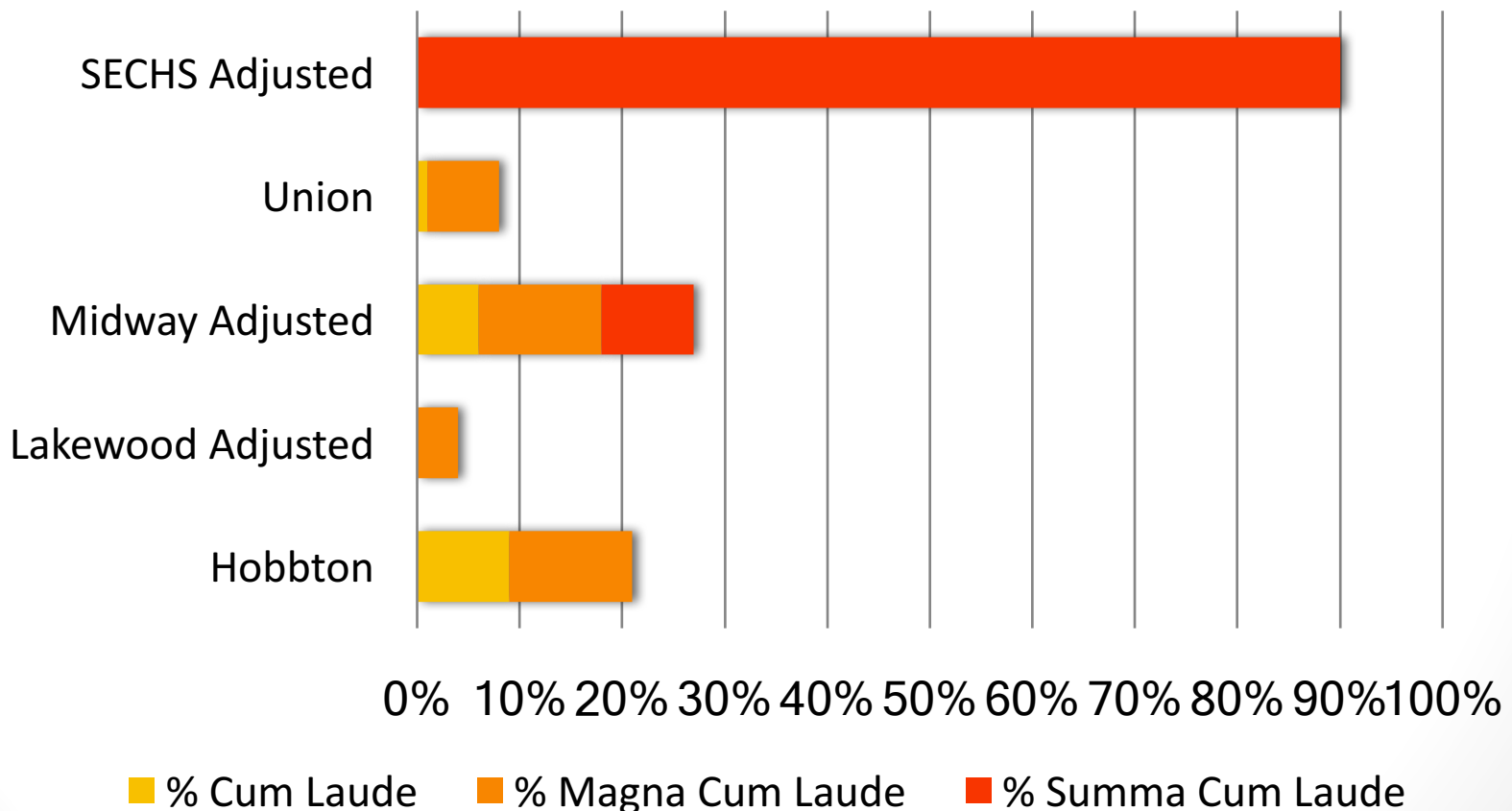
Predictions with Option A

% of Class of 2019 Predicted to Receive Recognition



Predictions with Option B

% of Class of 2019 Predicted to Receive Recognition



Summary of Predictions

School	Recognized with Top 10	Recognized with Option A	Recognized with Option B
Midway	6% (10 students)	35% (~63 students)	28% (~51 students)
Lakewood	8% (10 students)	14% (~19 students)	4% (~5 students)
Union	7.0% (10 students)	9% (~13 students)	9% (~12 students)
Hobbton	9.0% (10 students)	26% (~29 students)	22% (~24 students)
SECHS	14% (10 students)	90% (~60 students)	90% (~60 students)

Alternative Options

- Change the scale
 - Will be quite difficult to find something that will work consistently over time
- Allow schools to do different things
- Option C: % Based Cum Laude Scale...

Option C:% Based Cum Laude System

Students in Top 5%: Summa Cum Laude

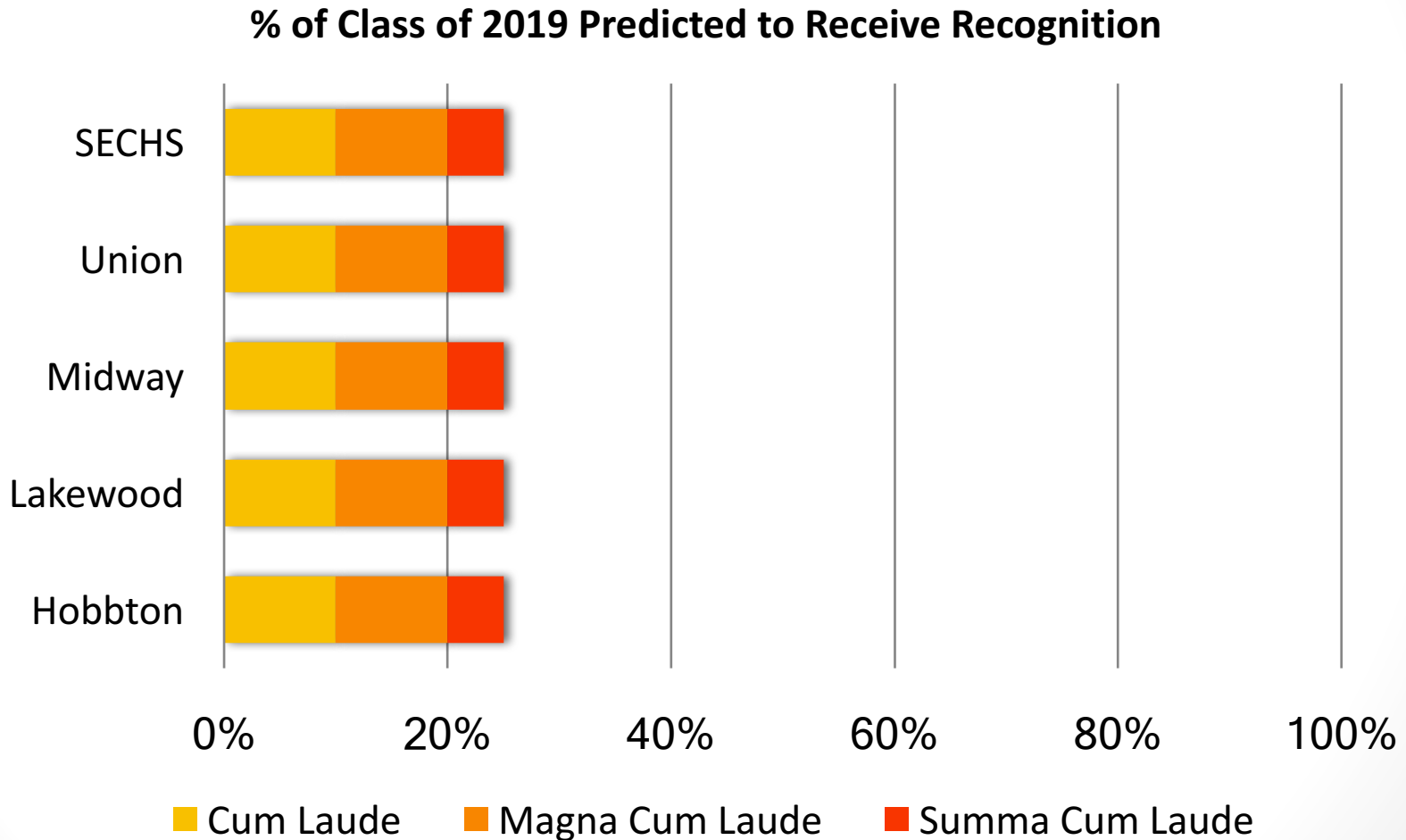
Students in Top 15%: Magna Cum Laude

Students in Top 25%: Cum Laude

Colleges that use this system include: Harvard, Yale, Columbia, Duke, Dartmouth, Amherst, William and Mary, Northwestern, Boston College, NYU, UCLA, Georgetown, and many others

Often used to minimize grade inflation and to allow students to be compared based on the offerings available at their institution

Option B: % Based Cum Laude



Summary of Predictions

School	Recognized with Top 10	Recognized with % System
Midway	6% (10 students)	25% (~45 students)
Lakewood	8% (10 students)	25% (~33 students)
Union	7.0% (10 students)	25% (~36 students)
Hobbs	9.0% (10 students)	25% (~28 students)
SECHS	14% (10 students)	25% (~18 students)

Considering the Hybrid System

If the HHS Class of 2016 used a Hybrid System, there would be already be multiple salutatorians:

#1 4.28125

#2 4.25

#2 4.25

#2 4.25

#2 4.25

Culture and Activities

COLLEGE-GOING CULTURE

End-of-Year Survey Results for HHS Class of 2016

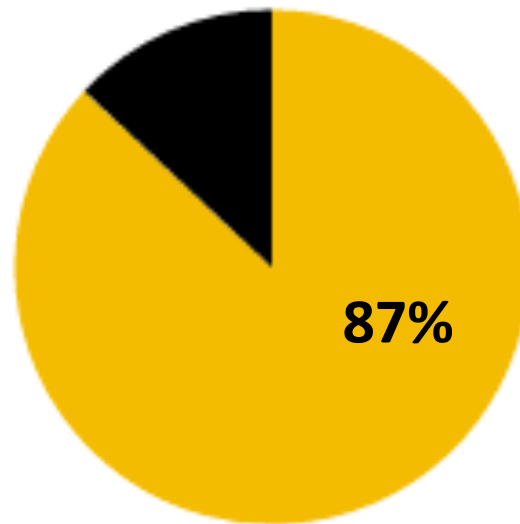
In May 2016, students completed an end-of-year survey with a variety of questions to measure the college-going culture at HHS

	Black	Hispanic	White	TOTAL
Female	9	24	30	62
Male	11	26	24	41
TOTAL	20	50	49	119

29% went on to a four-year school and **44%** went on to a two-year school

Evaluating my own work

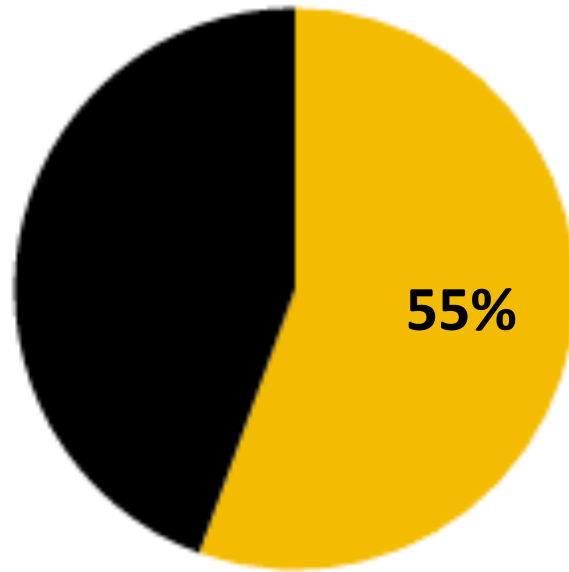
Did Ms. Hadley Help You With a College Application?



● YES ● NO

Evaluating my own work

Did Ms. Hadley Help You With Your FAFSA?



● YES ● NO

64% of students said Ms. Hadley strongly influenced their plans after high school



The majority of students strongly agreed with the following:

- All students, regardless of GPA, are encouraged to attend college
- Most parents of students at HHS expect their children to go to college
- It is easy to get information about college at my school
- Teachers and counselors encourage all students to pursue some type of college

The majority of students strongly disagreed with the following:

- Many students receive little or no college counseling
- Few teachers talk about college in class
- My school is not very focused on getting students to attend college
- There are very few posters and other college related information displayed through my school
- Many students at my school do not expect to go to college

The majority of students neither agreed nor disagreed with the following:

- At my school, teachers and counselors regularly advise freshman and sophomores about college
- My school is supportive of students getting a job or joining the military instead of attending college

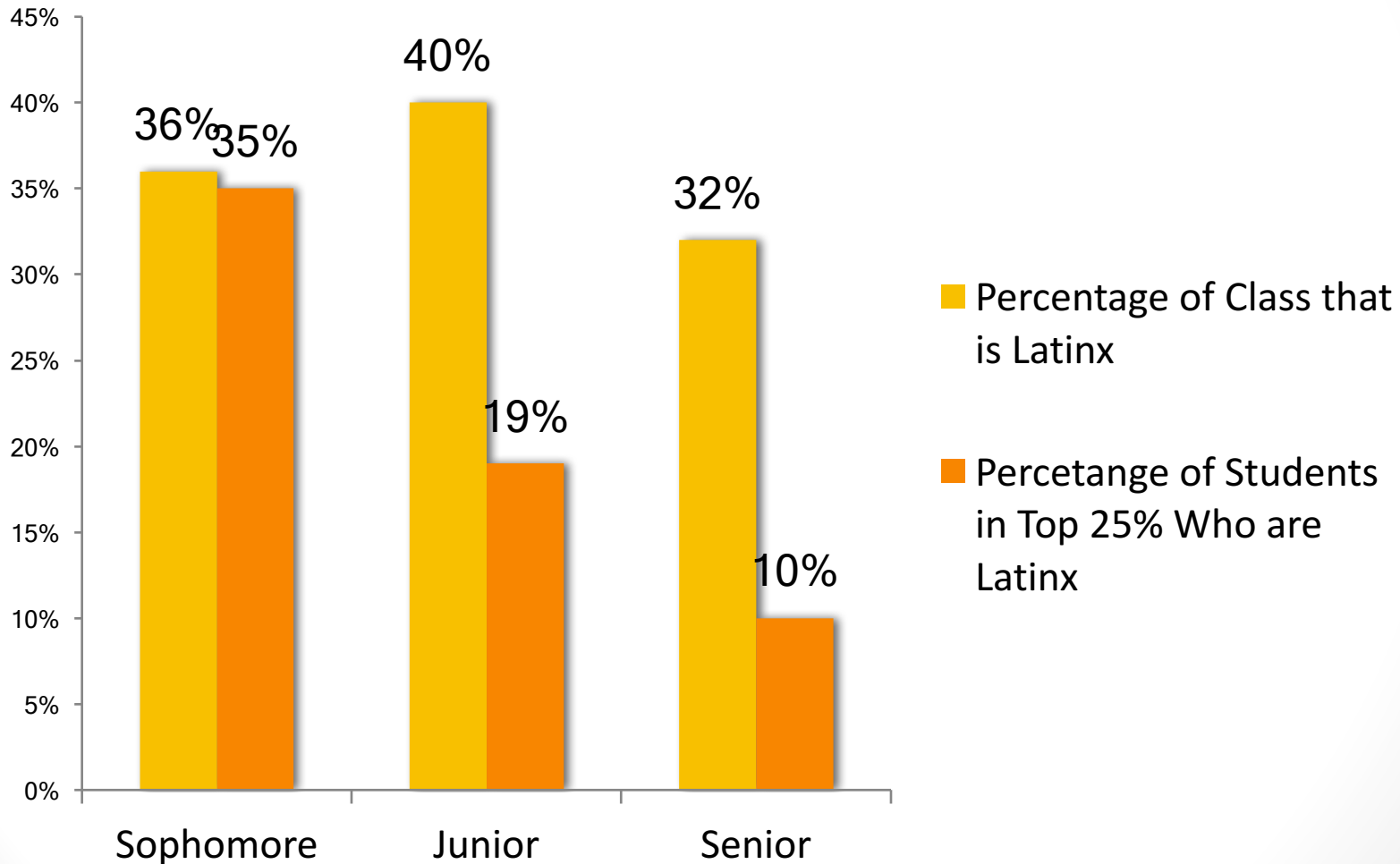
Further Research Questions

- How does perception of college-going culture differ by race, gender, and perhaps socioeconomic status?
- How many students are first generation?
- What topics do students feel they know a lot about? What do they know less about?
- How can we better engage underclassmen and parents in the process?

Culture and Activities

SERVING LATINX STUDENTS

Observing the discrepancy among our highest achieving students



Further Research Questions

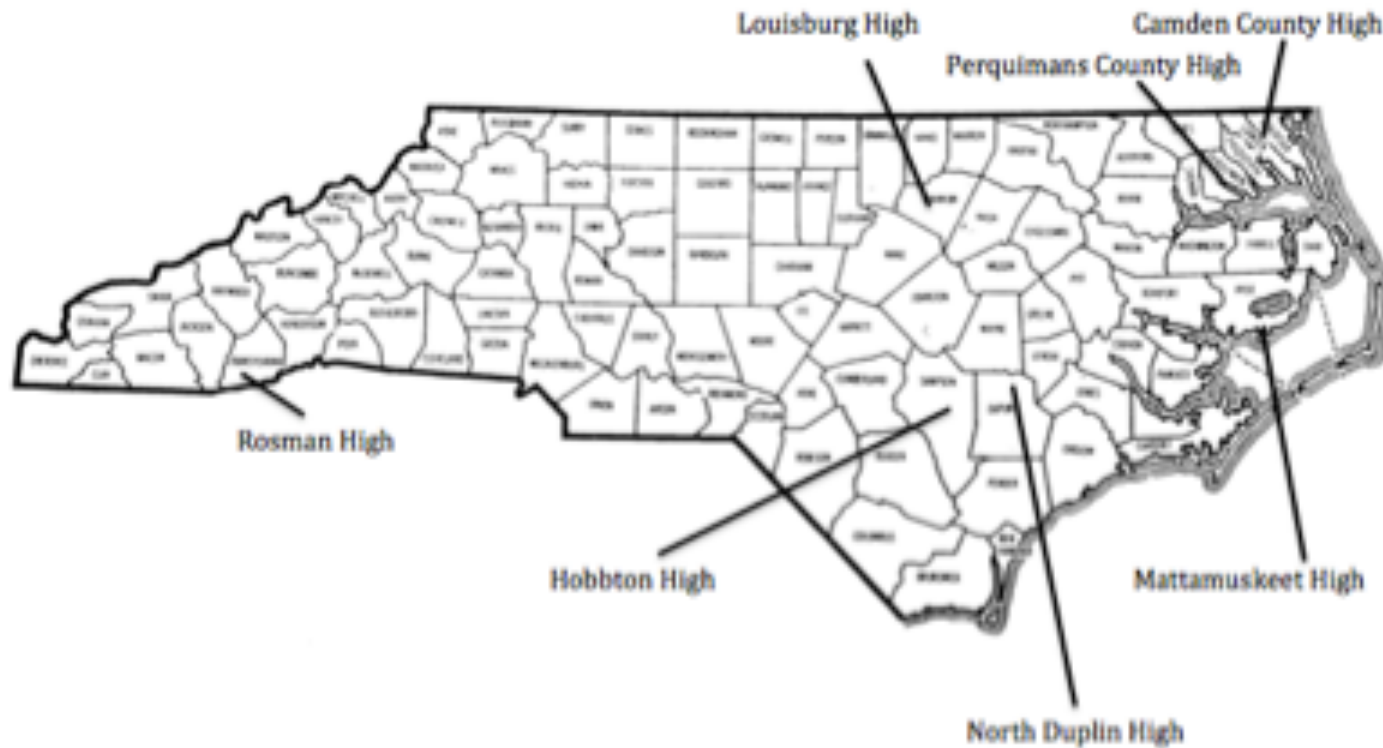
- What strategies have our highest-achieving Latinx students used to achieve their success?
- Why are there not more high achieving Latinx students among our juniors and seniors? Did their classes begin this way or has there been a discrepancy in GPA growth?
- What resources can we provide our Latinx students to better serve them?

Culture and Activities

HHS TRACK & FIELD

HHS Track Complex

The 7 Traditional High Schools with Track Teams but No Track



96% of traditional public high schools in North Carolina have a track

Thank you!

Emily Hadley can be reached at
ehadley@sampson.k12.nc.us