Math and Science Preparation, College Enrollment, and College Persistence

Science Kickstart Meeting
July 17, 2017

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Hawai'i P-20 Partnerships for Education

Hawai'i dxp Data eXchange Partnership

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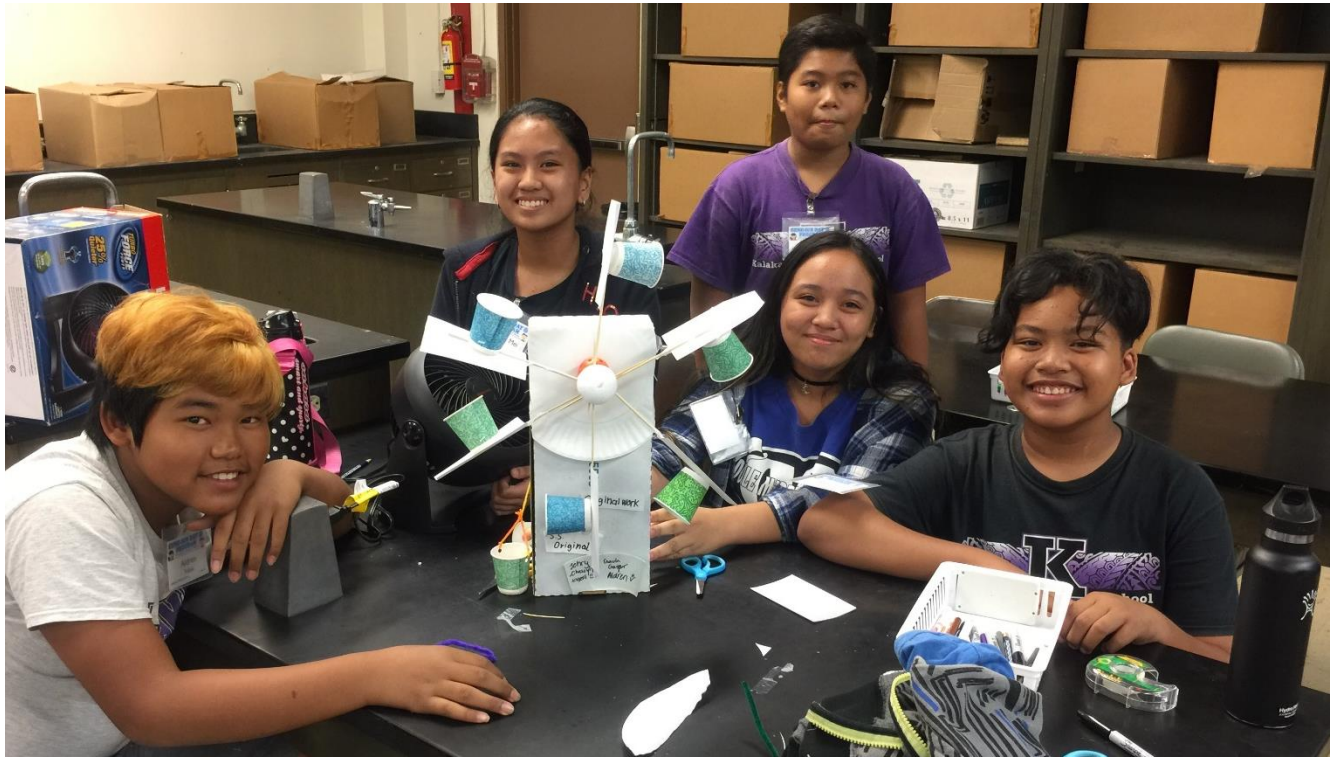
Rationale

- Next Generation Science Standards
- Equity
- Postsecondary perspective



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Hawai‘i P-20 Partnerships for Education strengthens the education-to-workforce pipeline.

State Policy Advocate

CORE TO COLLEGE

Key Communicator and Convener

55 BY '25

Best Practices Program Developer

GEAR UP HAWAI'I

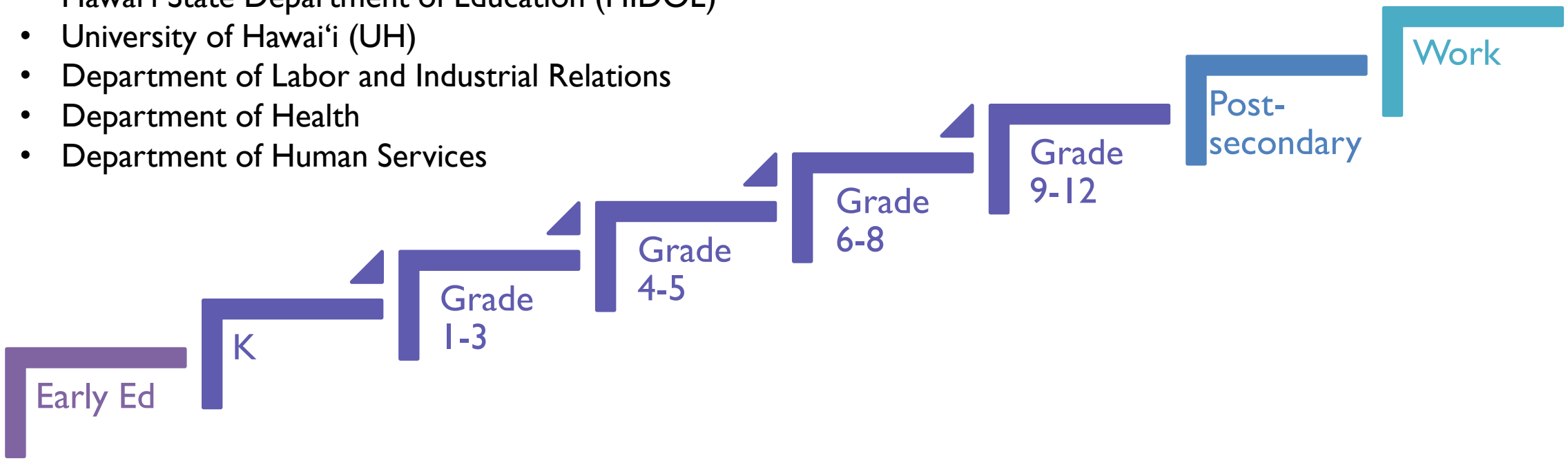
Interagency Data Coordinator

Hawai'i dxp Data eXchange Partnership

Hawai‘i Data eXchange Partnership (DXP) is a statewide longitudinal data system.

Partner Agencies:

- Hawai‘i State Department of Education (HIDOE)
- University of Hawai‘i (UH)
- Department of Labor and Industrial Relations
- Department of Health
- Department of Human Services



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Why did we create the Hawai‘i DXP?

Partners recognize	• Each contributes to the continuum of early childhood, educational, and workforce outcomes of ***shared individuals***
To improve outcomes	• Evaluate short- and long-term impacts of programs and services • Identify areas for improvement
To accomplish this	• Share data to help answer questions that each Partner would not be able to answer with its own data

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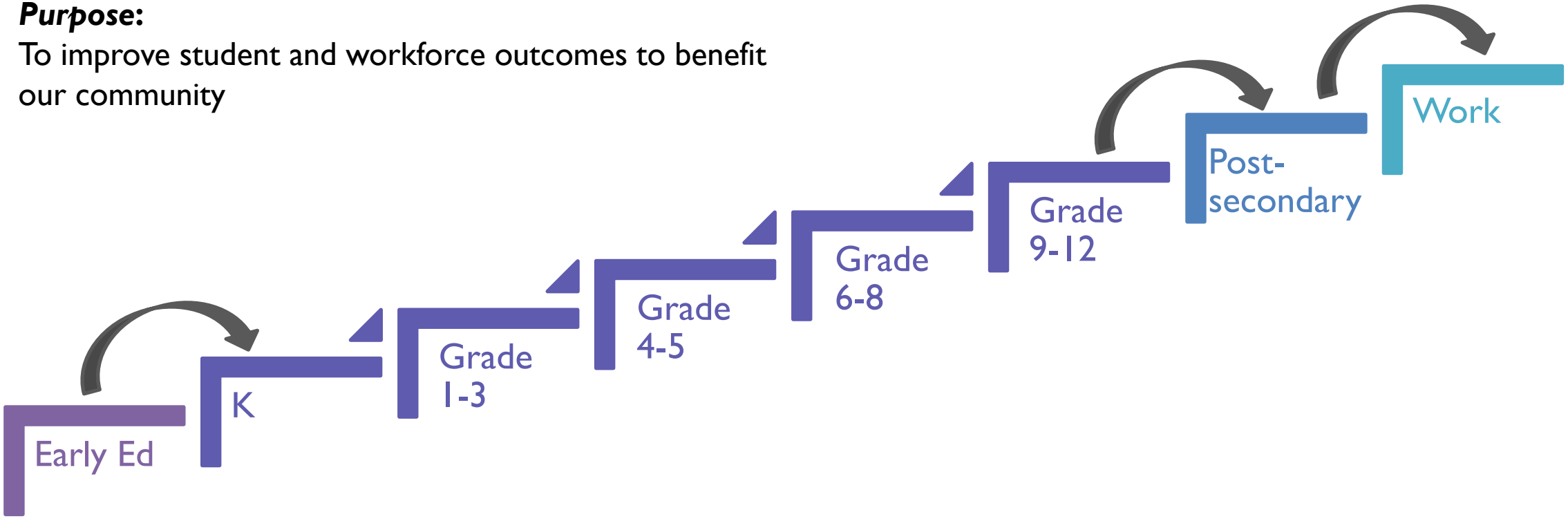
Hawai‘i DXP allows for cross-sector analysis.

Purpose:
To improve student and workforce outcomes to benefit our community



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WHAT TYPES OF SCIENCE COURSES DO HIGH SCHOOLS OFFER?

Science course enrollments in SY2014-15 and SY2015-16 at HIDOE department high schools

- Excludes middle school, directed study, and Running Start courses
- Excludes transfer course records and e-school course records

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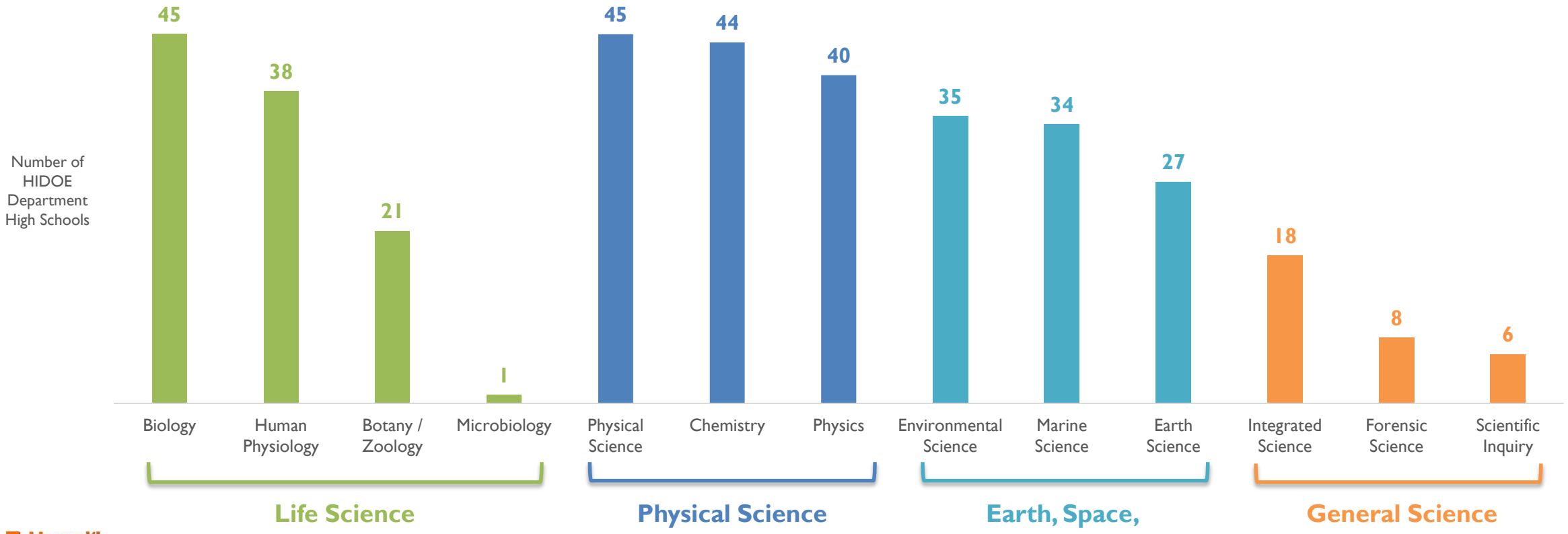
Nearly all schools offered Biology, Physical Science, and Chemistry.



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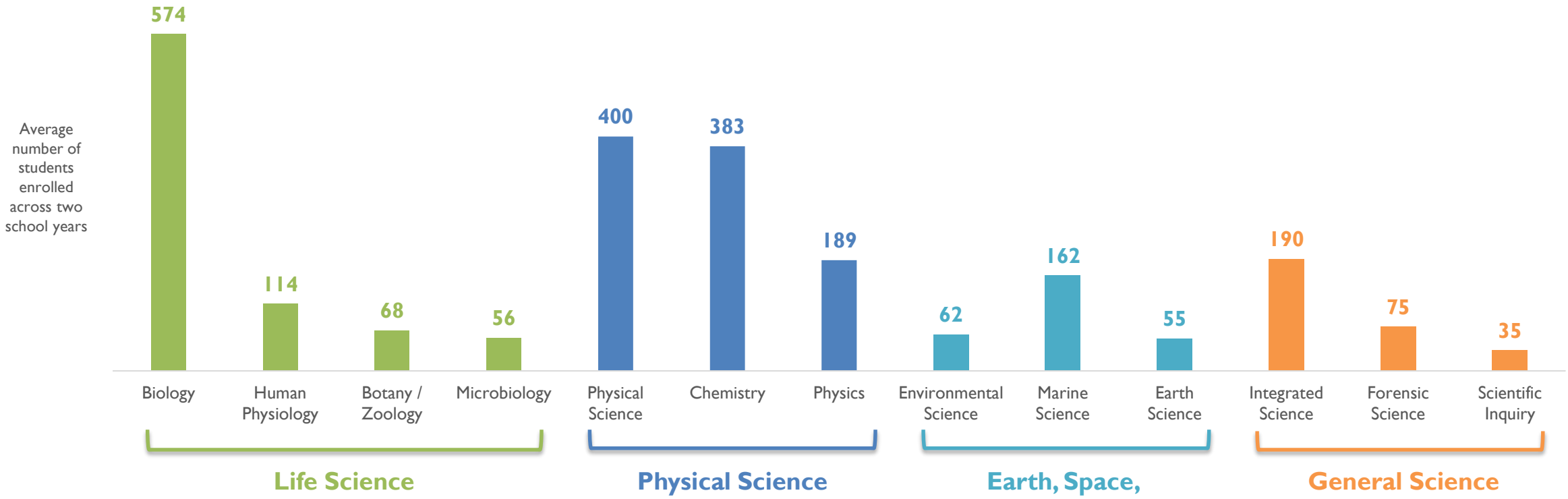
Biology, Physical Science, and Chemistry were also the most popular courses taken.



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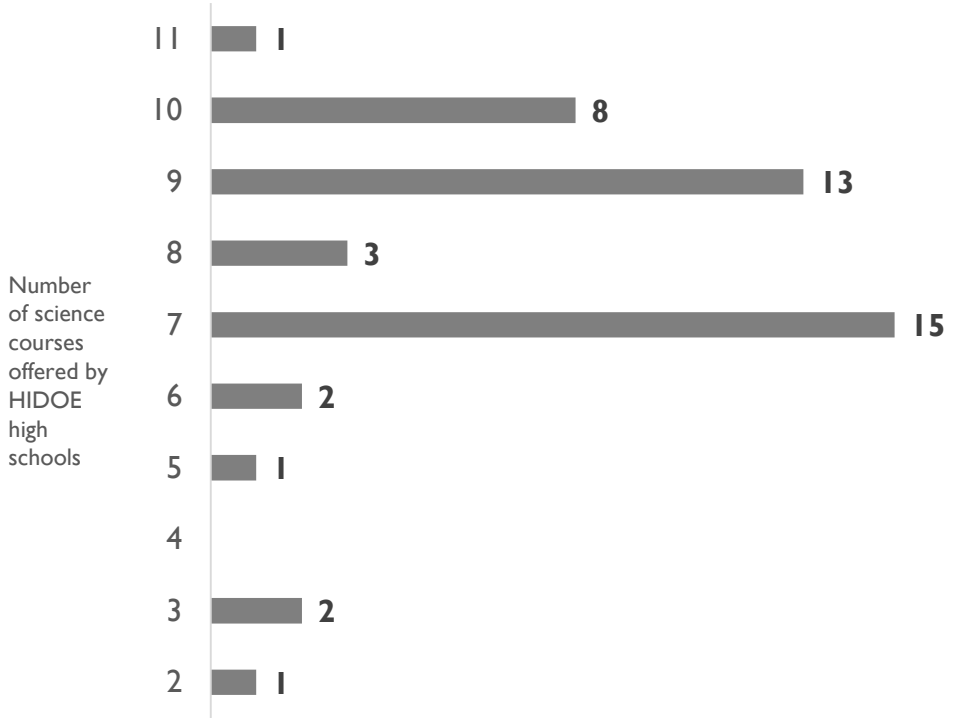
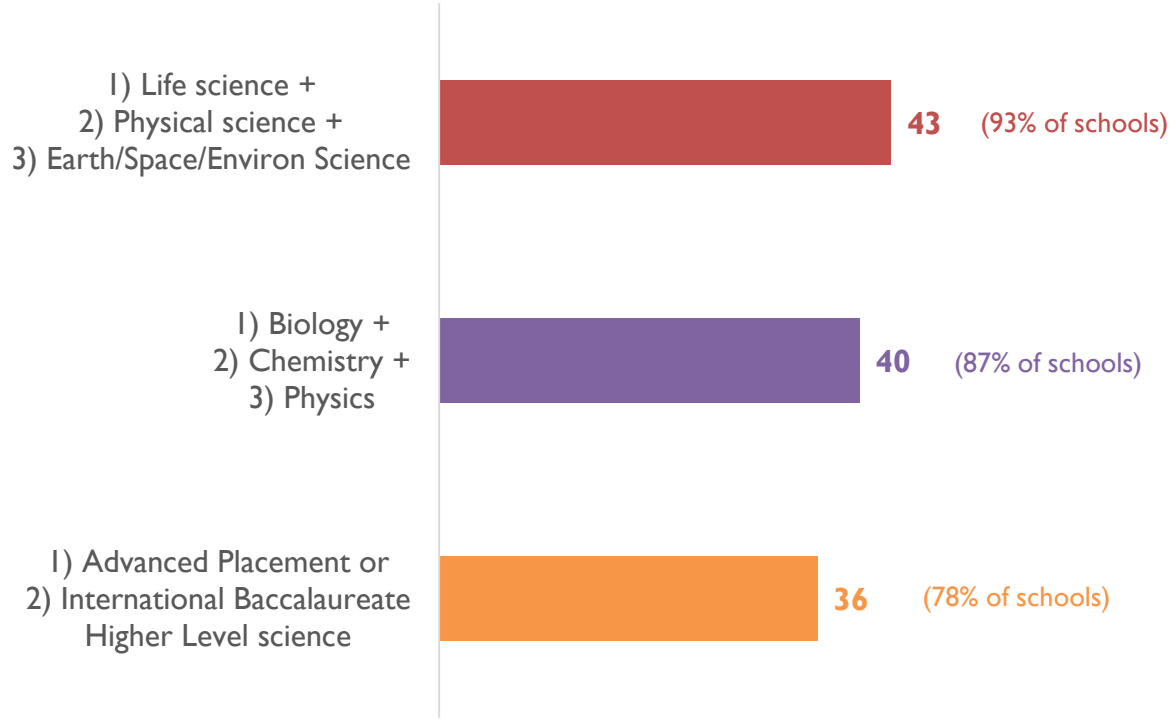
How many types of science courses are offered?

Most HIDOE high schools offered 7 or more types of science courses.



Most HIDOE high schools offered at least one course in each NGSS science category.



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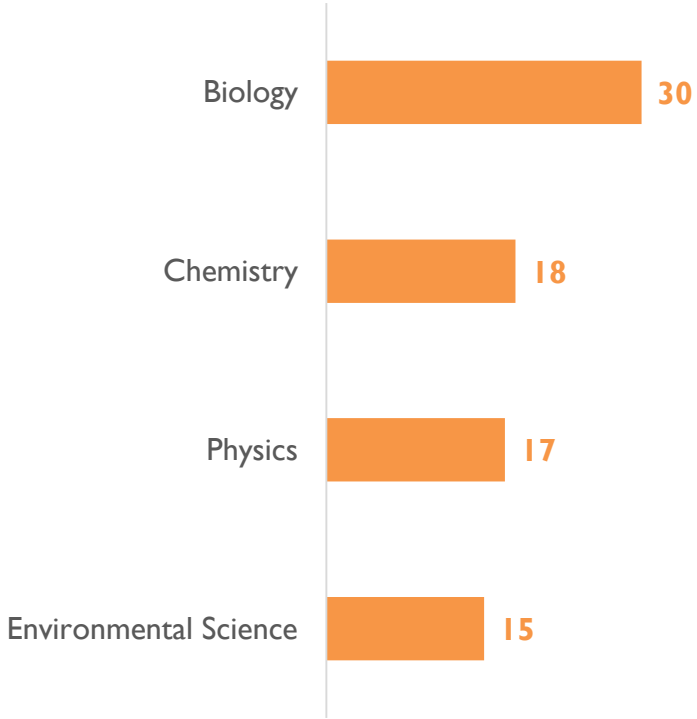
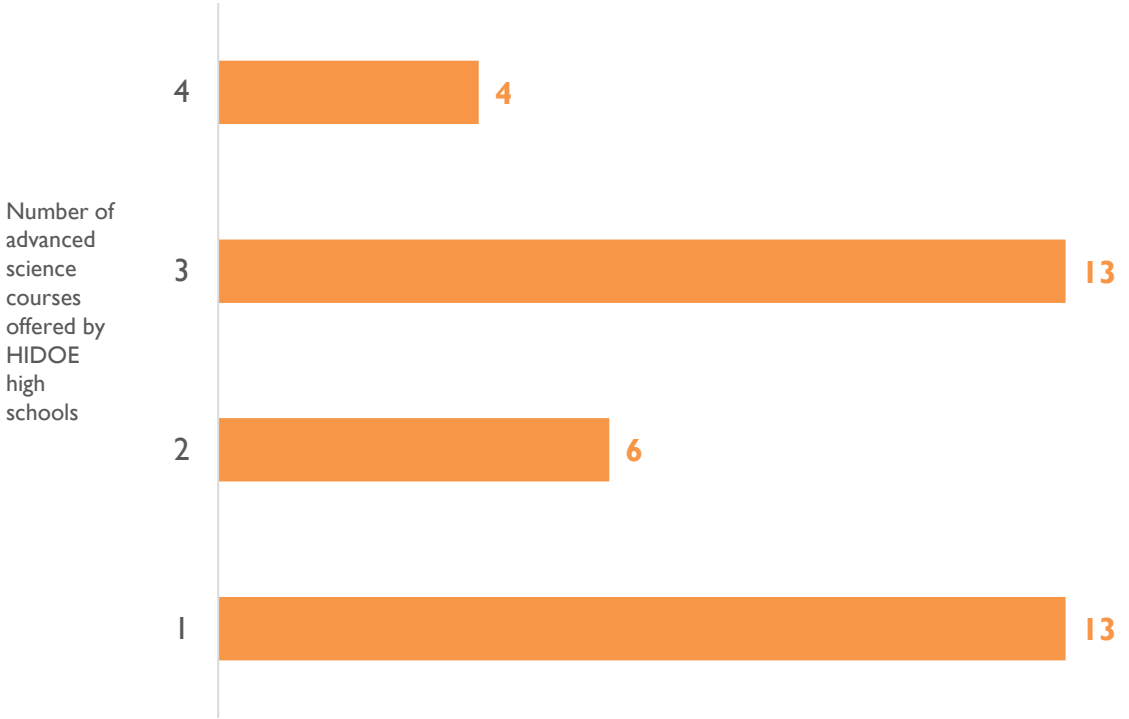
How many types of advanced science courses are offered?

(Advanced Placement or International Baccalaureate Higher Level)

Biology was the most common advanced science course offered.



All schools with more than one advance science offered advanced Biology.



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Brief Discussion

What questions do you have?

Does anything surprise you?

Are there any issues of equity and access?

WHAT MATHEMATICS AND SCIENCE COURSES DO GRADUATES COMPLETE?

Includes Class of 2012 – 2016 students who graduated from a HIDOE department school and were enrolled in the DOE in all 4 school years ending in graduation.

Excludes charter school graduates, and graduates who were not enrolled in the DOE all 4 years.

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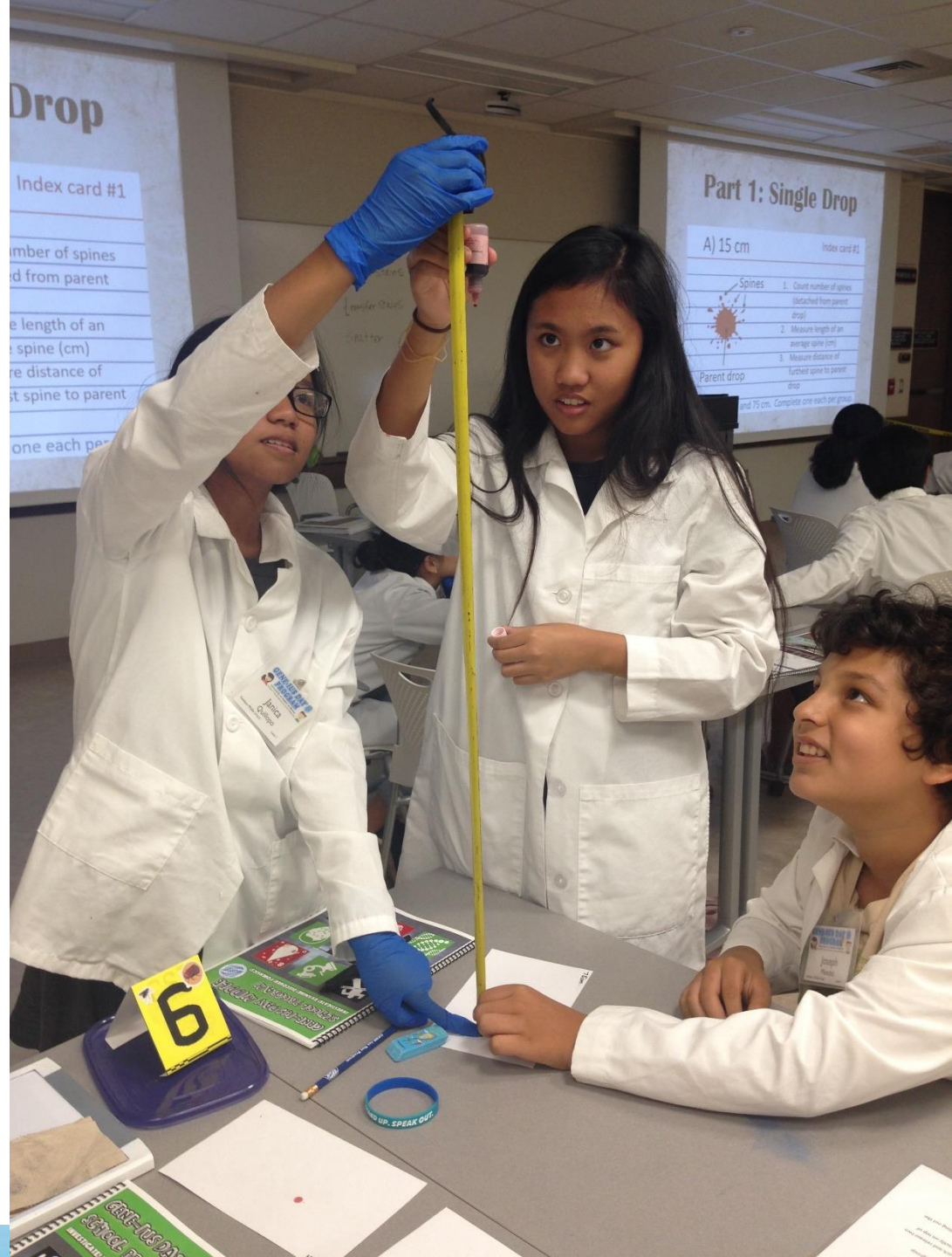
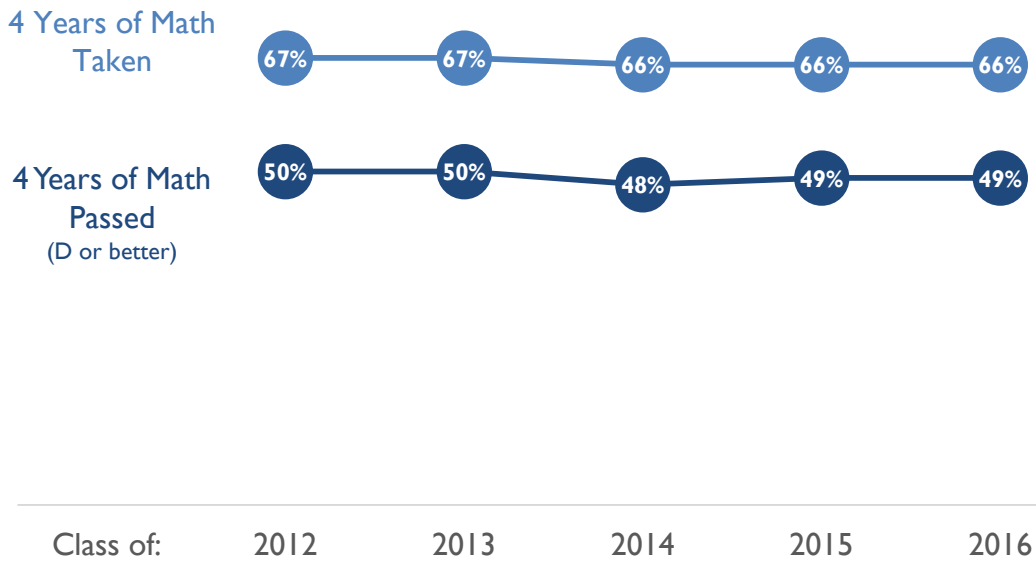
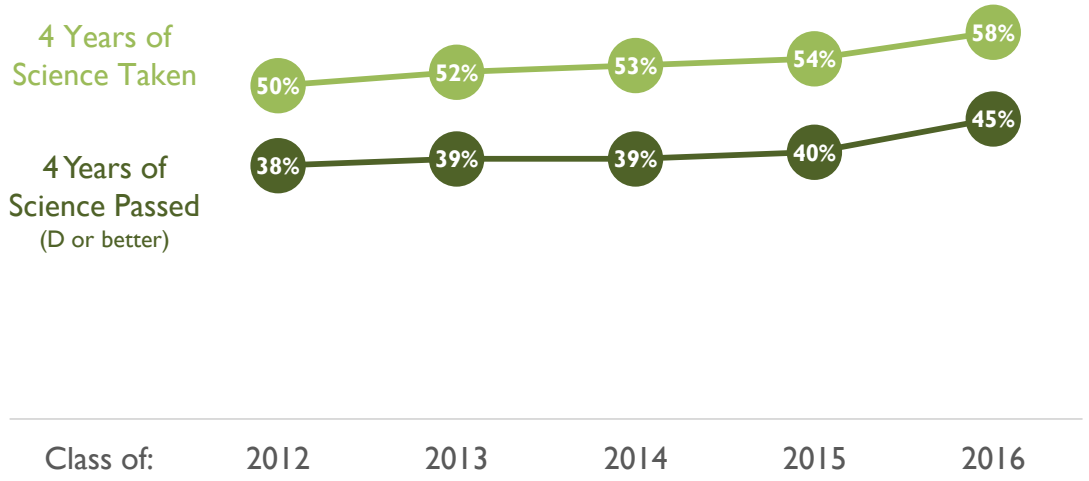


Not much change in the percentage of graduates taking and passing 4 years of mathematics. An increasing number of graduates are taking and passing 4 years of science.

Years of Mathematics



Years of Science



4 Years Taken: enrolled in at least one course in each of the 4 school years ending in graduation
4 Years Passed: passed at least one course with a D or better in each of the 4 school years ending in graduation

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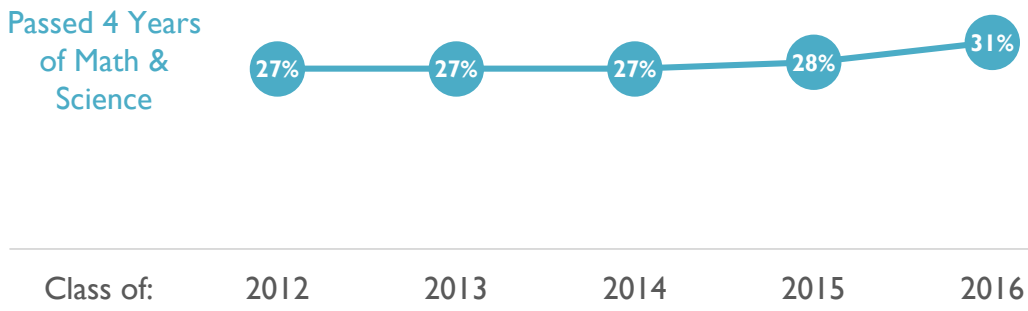
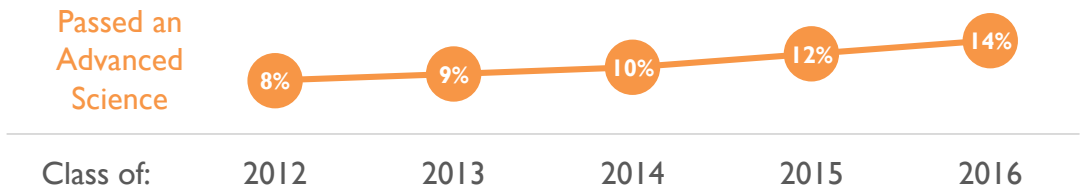
An increasing number of graduates are passing 4 years of math and science, or advanced science courses.

Passed 4 Years of Math and Science



Passed an Advanced Science

(Advanced Placement, International Baccalaureate higher level, dual credit)



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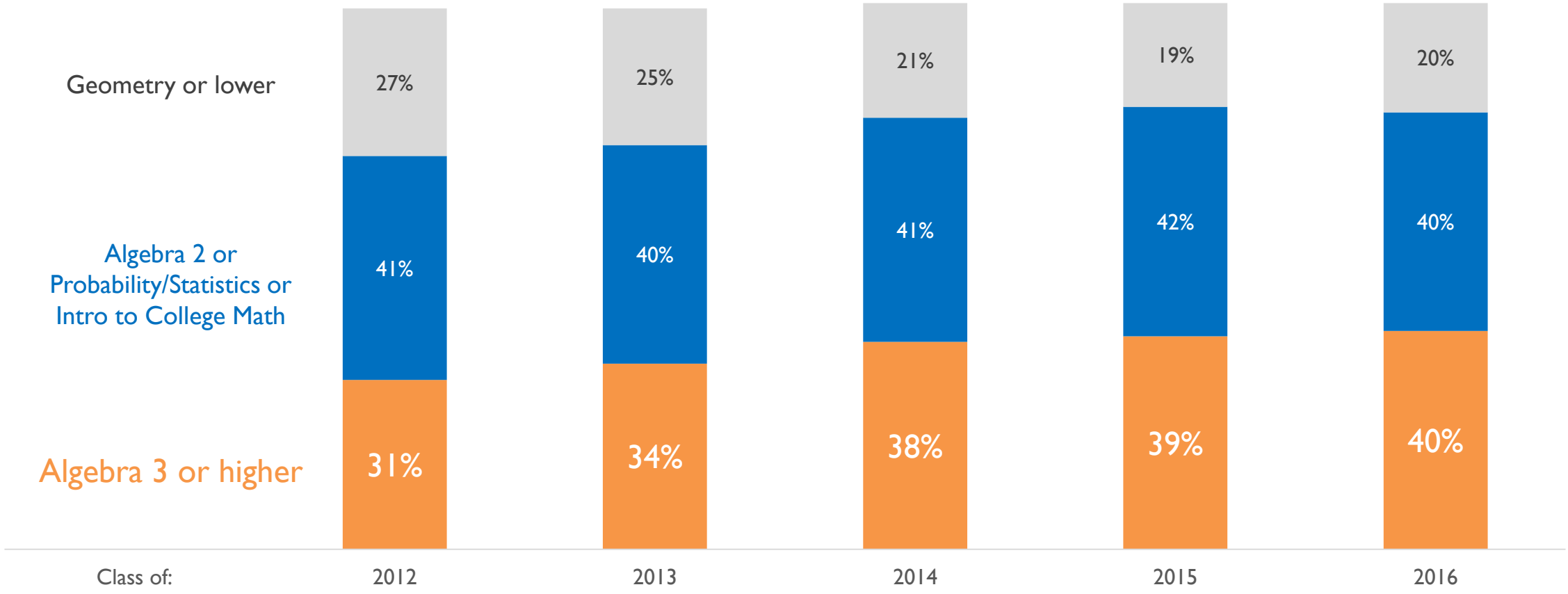
More graduates are passing Algebra 3 or higher.



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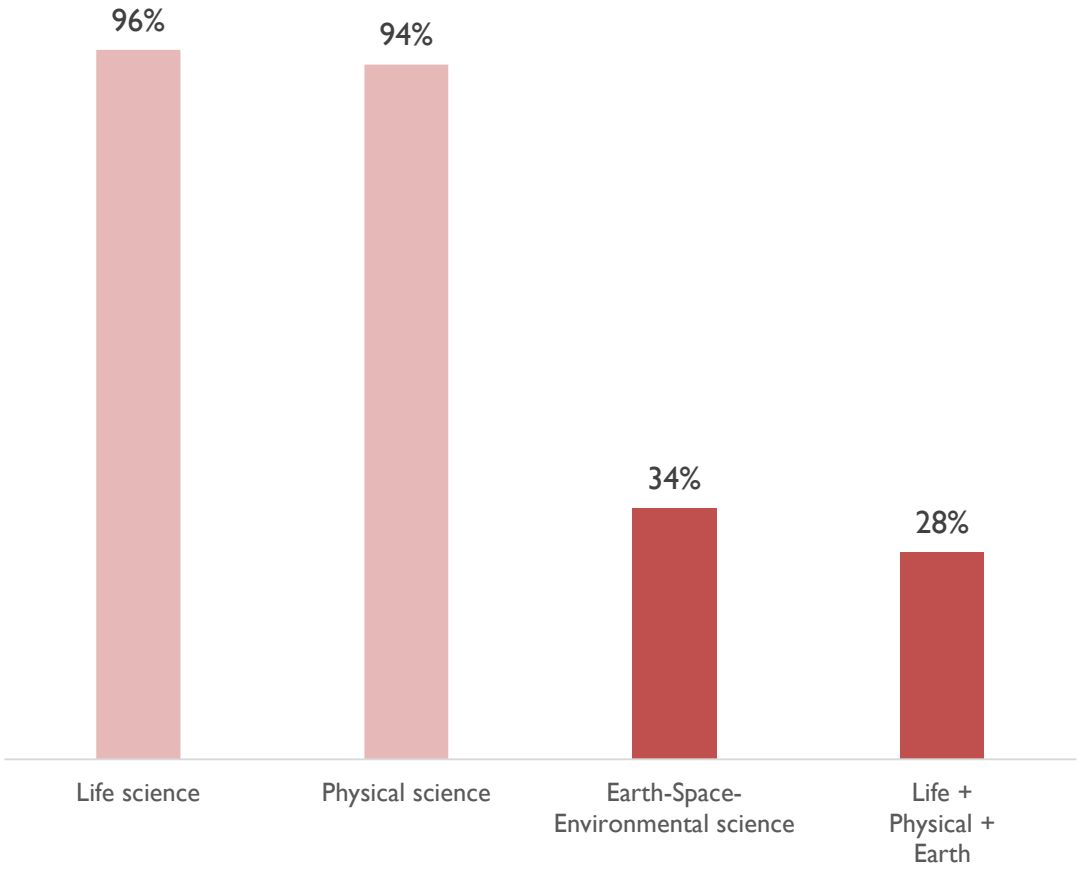
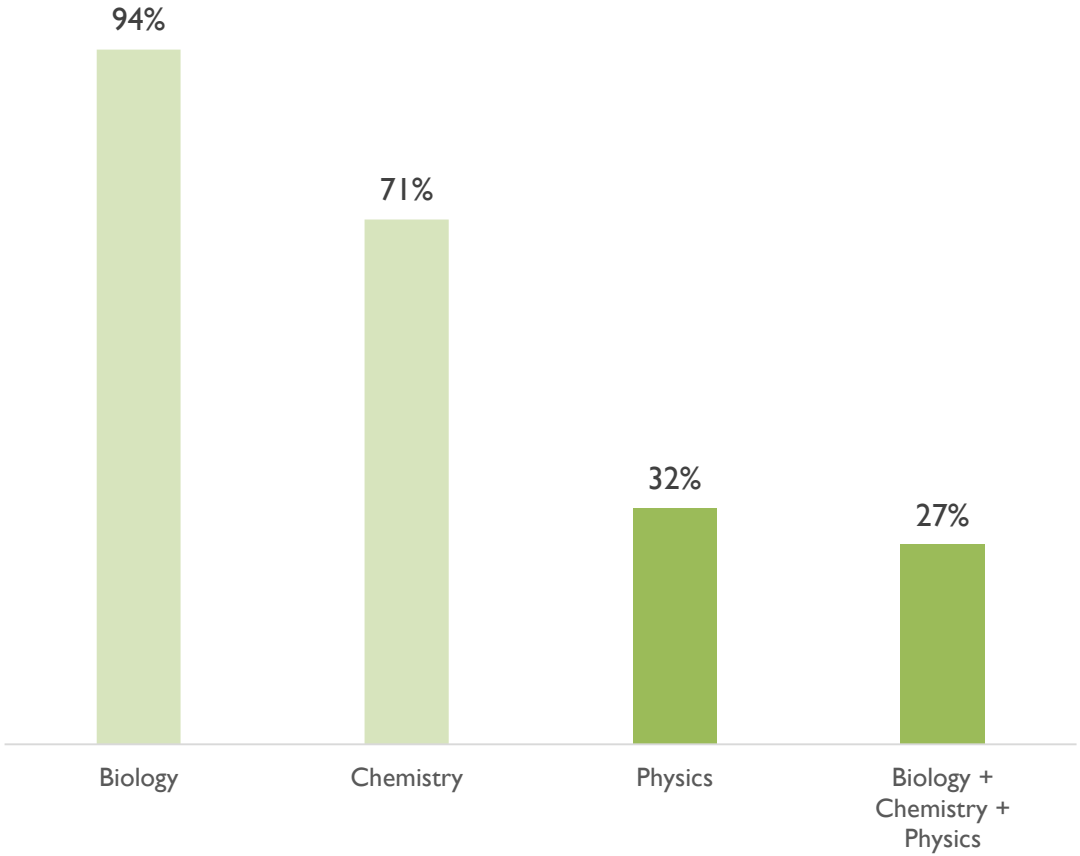
About one in three graduates completed an Earth/Space/Environmental science or Physics course.





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Brief Discussion

What questions do you have?

Does anything surprise you?

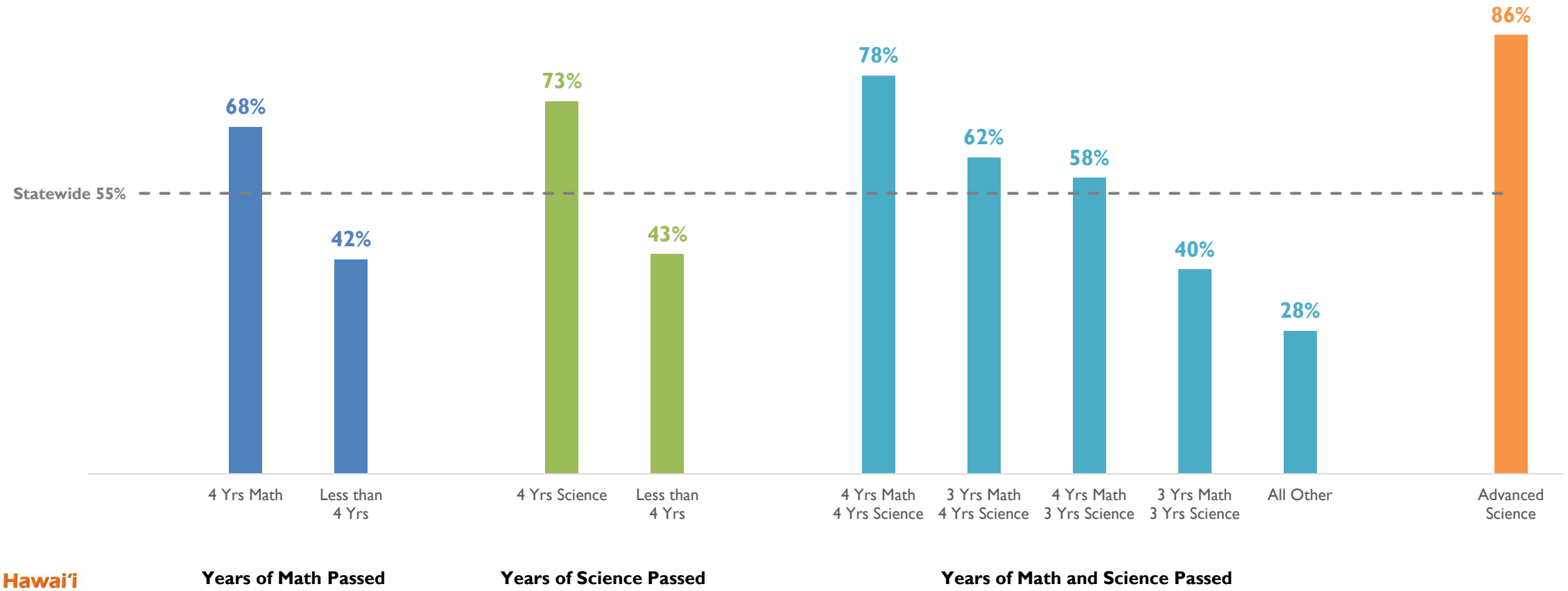
Are there any issues of equity and access?

ARE THERE DIFFERENCES IN COLLEGE ENROLLMENT BASED ON HIGH SCHOOL COURSETAKING?

Includes Class of 2012 – 2014 students who graduated from a HIDOE department school and were enrolled in the DOE in all 4 school years ending in graduation.

Excludes charter school graduates, and graduates who were not enrolled in the DOE all 4 years.

Graduates who passed 4 years of math or science were more likely to enroll in college in the fall after graduation.



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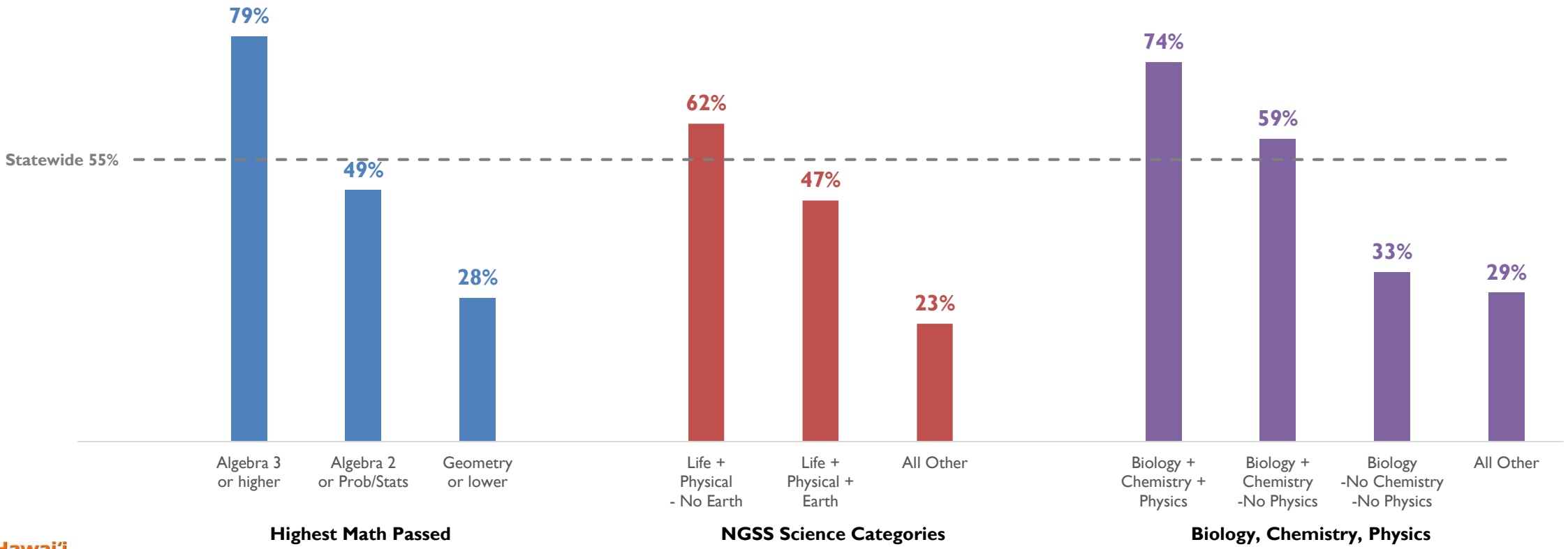
Graduates who passed Algebra 3 or higher or passed Biology+Chemistry+Physics were more likely to enroll in college in the fall after graduation.



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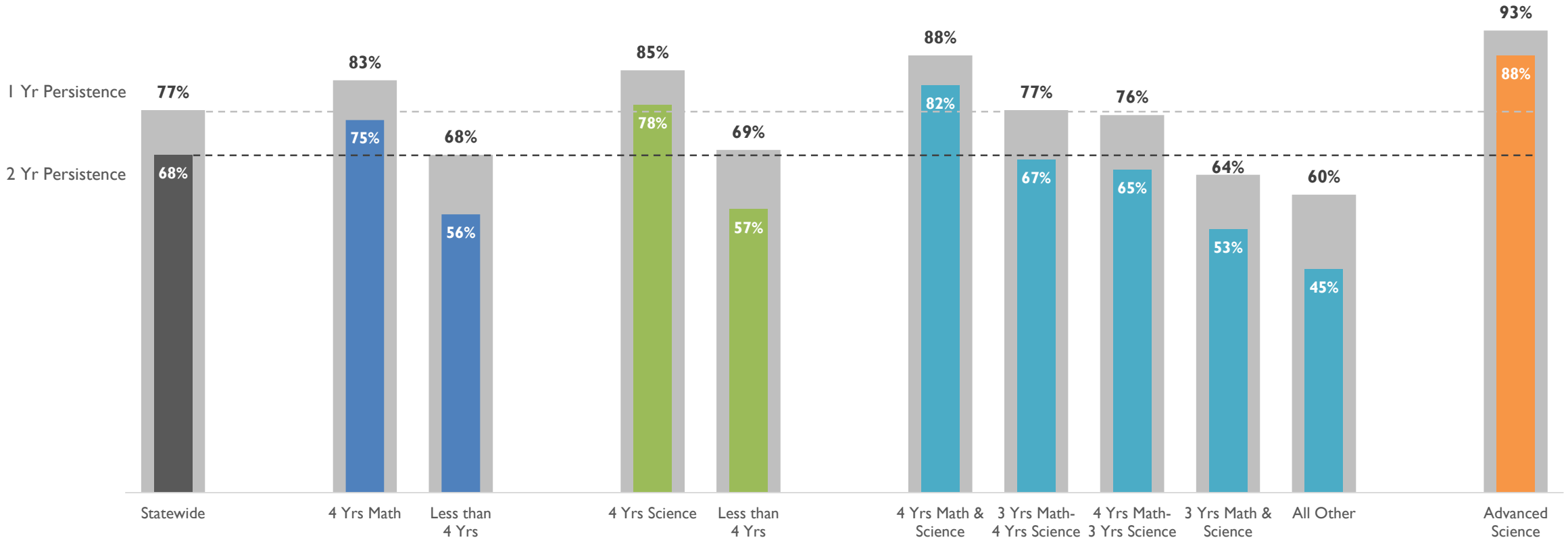
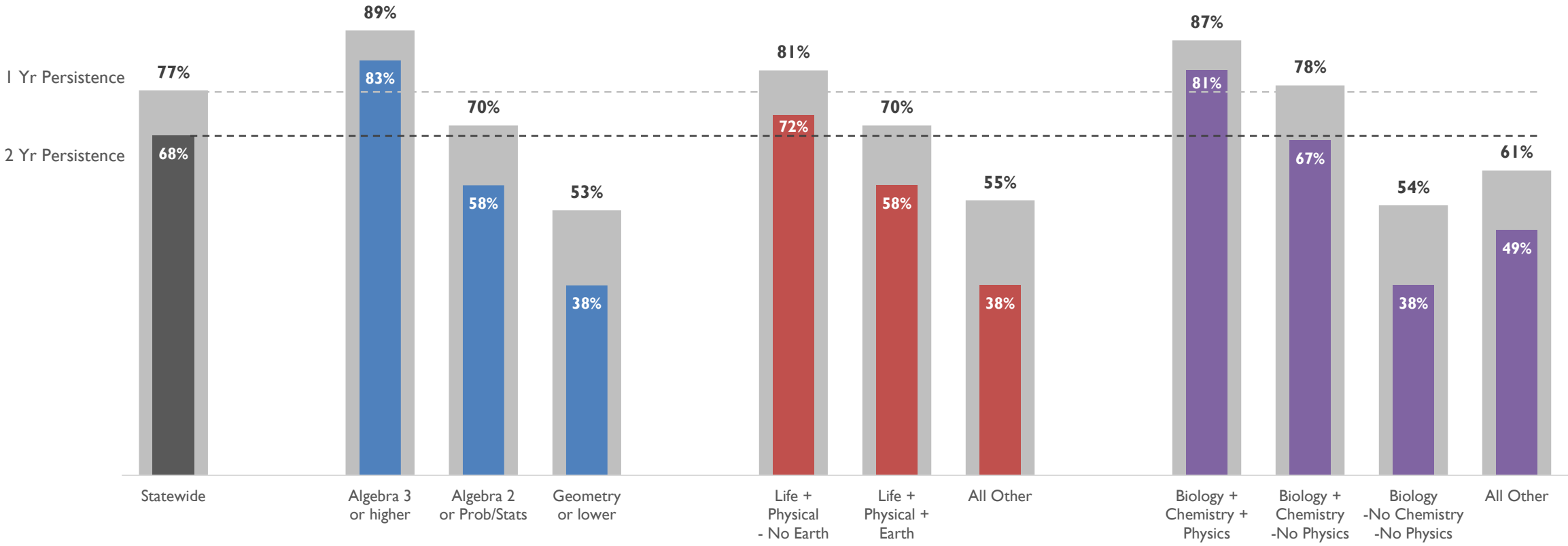
Graduates who passed 4 years of math or science were more likely to persist in college.



1 Yr Persistence: percent of graduates enrolled in college in the first fall after graduation who were still enrolled in college one year later (in the second fall).

2 Yr Persistence: percent of graduates enrolled in college in the first fall after graduation who were still enrolled in college two years later (in the third fall).

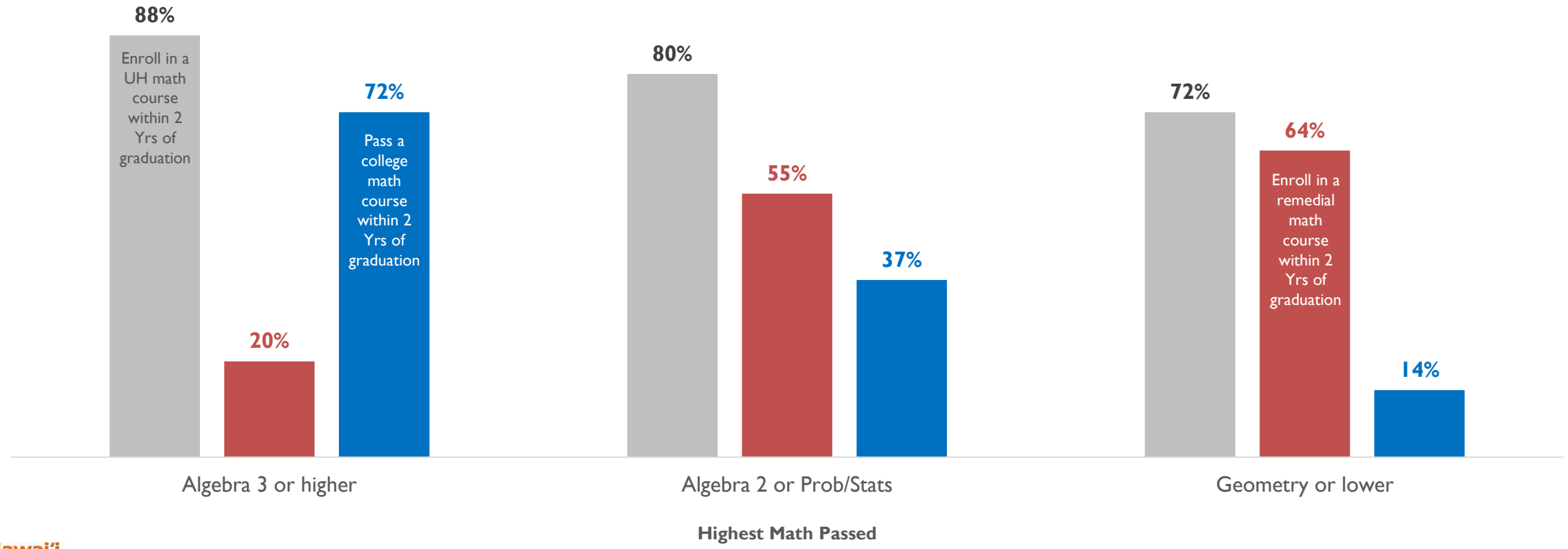
Graduates who passed Algebra 3 or higher or passed Biology+Chemistry+Physics were more likely to persist in college.



1 Yr Persistence: percent of graduates enrolled in college in the first fall after graduation who were still enrolled in college one year later (in the second fall).

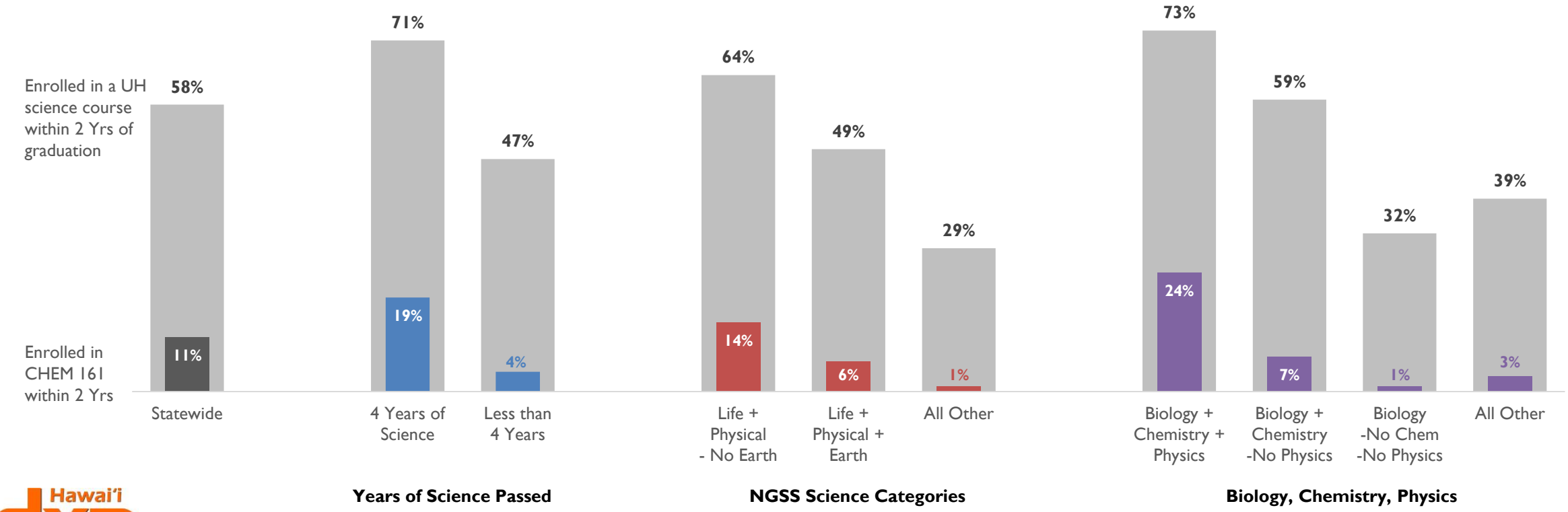
2 Yr Persistence: percent of graduates enrolled in college in the first fall after graduation who were still enrolled in college two years later (in the third fall).

Graduates who passed Algebra 3 or higher were more likely to take a UH math course, less likely to need math remediation, and more likely to pass a college-level math course.



All of the above as a percent of the Class of 2012 – 2014 graduates who enroll at UH within 2 years of graduation.

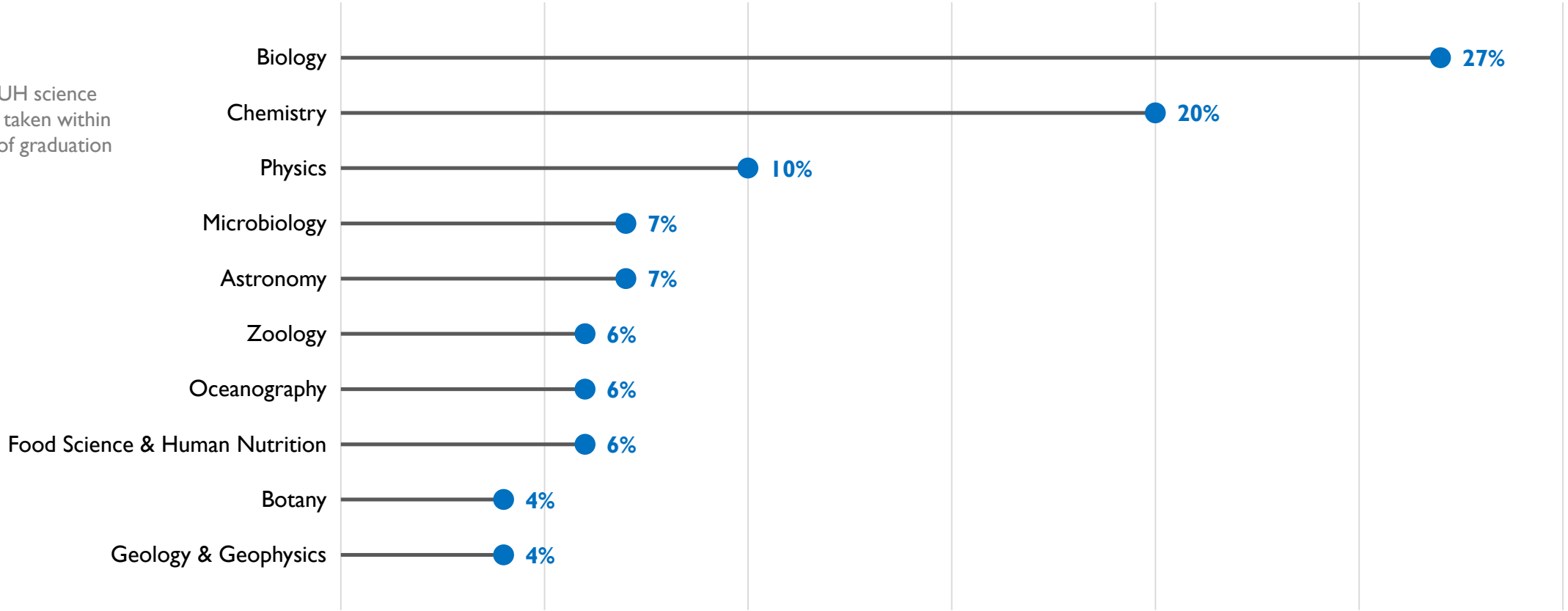
Graduates who passed 4 years of science or Biology+Chemistry+Physics were more likely to take a UH science course and more likely to take CHEM 161 within 2 years of graduation.



All of the above as a percent of the Class of 2012 – 2014 graduates who enroll at UH within 2 years of graduation.

Biology was the most common UH science subject taken, followed by Chemistry.

Top 10 UH science subjects taken within 2 years of graduation



All of the above as a percent of the Class of 2012 – 2014 graduates who enroll at UH within 2 years of graduation.
Students who enrolled in more than one science subject at UH are counted in each subject.

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Brief Discussion

What questions do you have?

Does anything surprise you?

Are there any issues of equity and access?

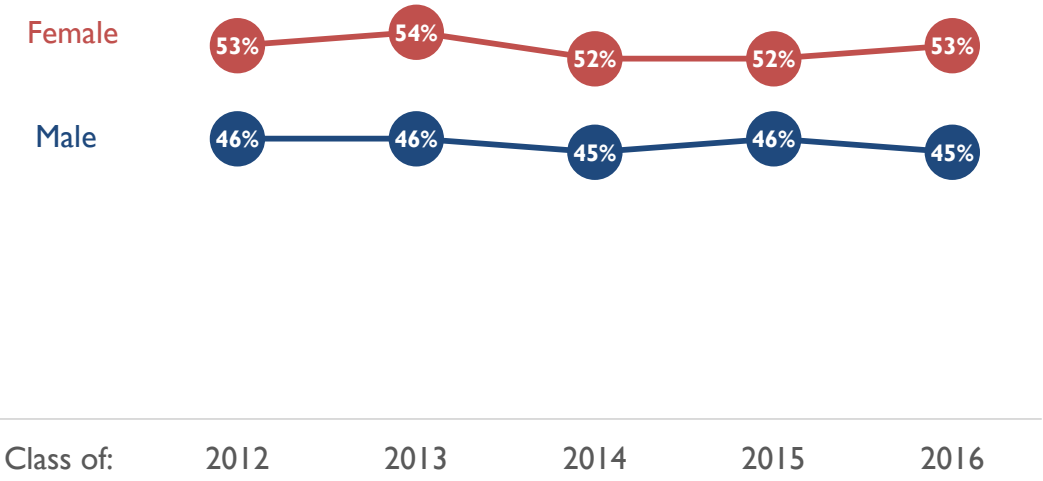
ARE THERE DIFFERENCES IN COURSETAKING BY SUBPOPULATION?

Includes Class of 2012 – 2016 students who graduated from a HIDOE department school and were enrolled in the DOE in all 4 school years ending in graduation.

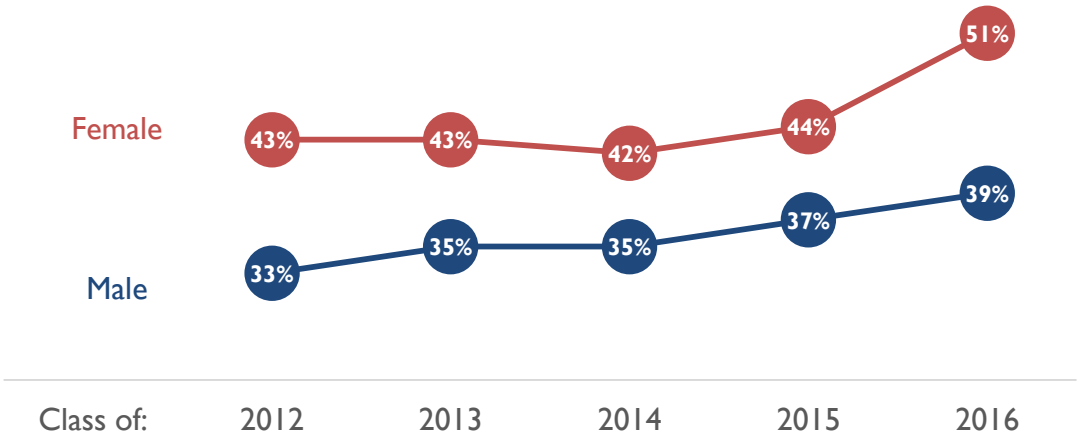
Excludes charter school graduates, and graduates who were not enrolled in the DOE all 4 years.

Females were more likely to pass 4 years of math or science.

4 Years of Mathematics Passed



4 Years of Science Passed



4 Years Passed: passed at least one course with a D or better in each of the 4 school years ending in graduation

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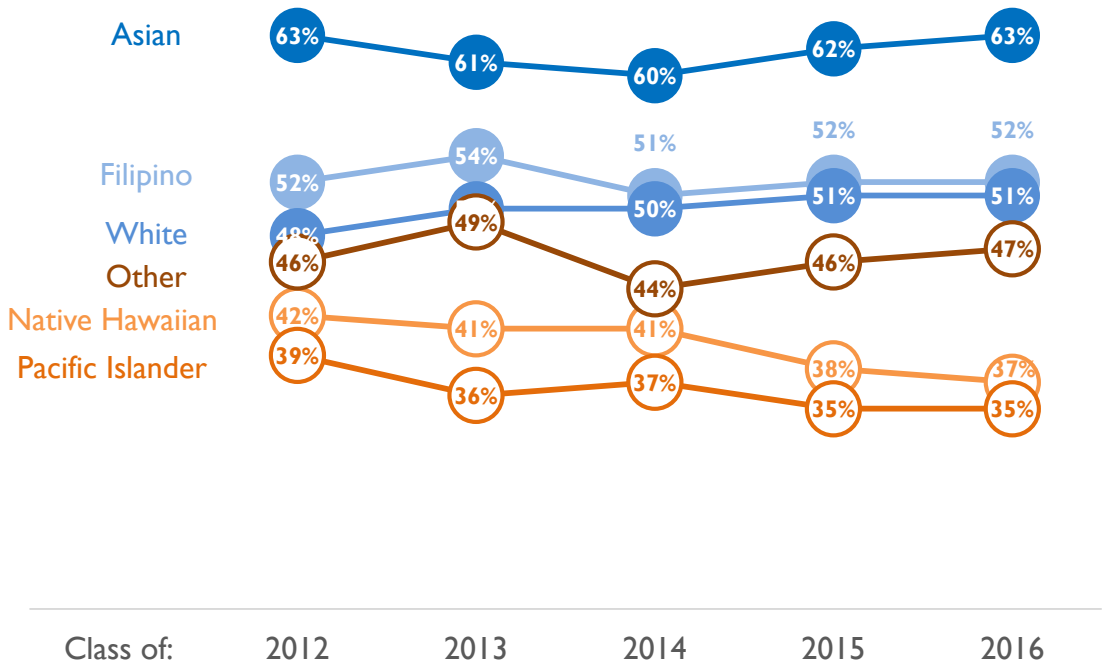
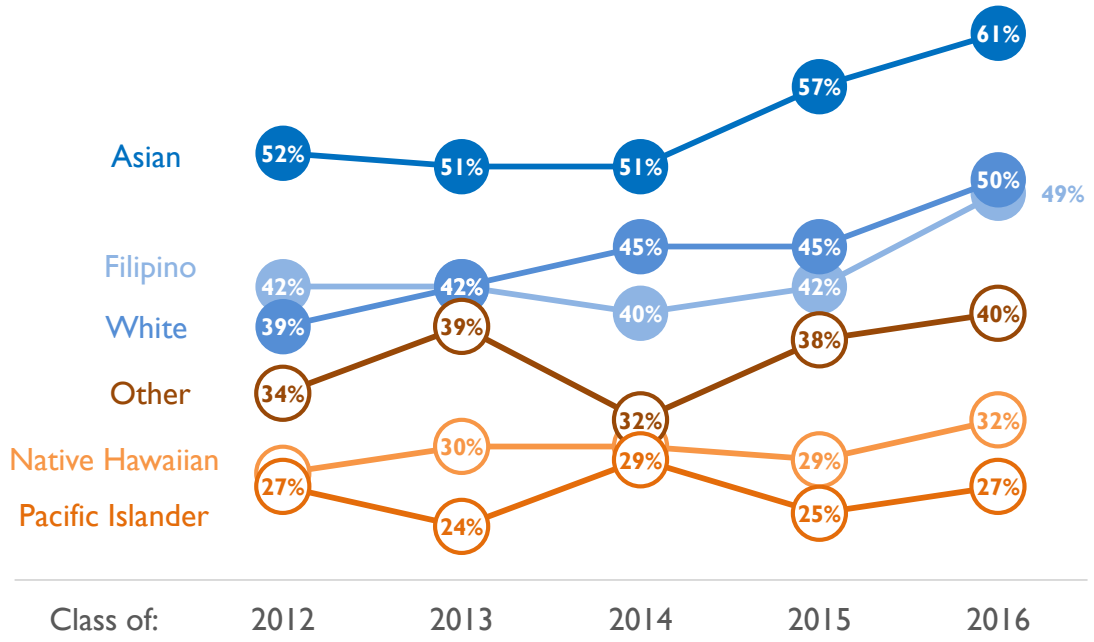
Asian graduates were most likely to pass 4 years of math or science.

4 Years of Mathematics Passed



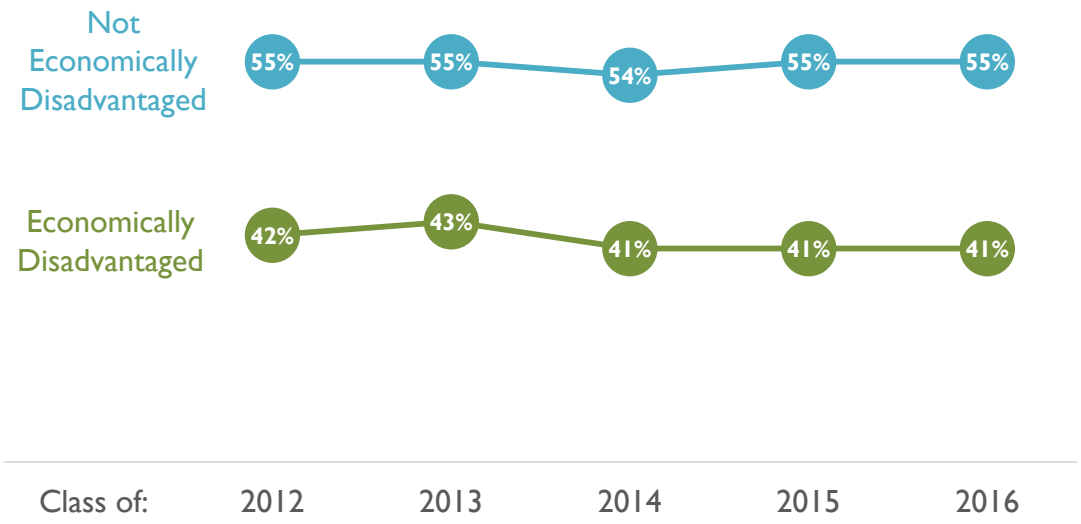
4 Years of Science Passed



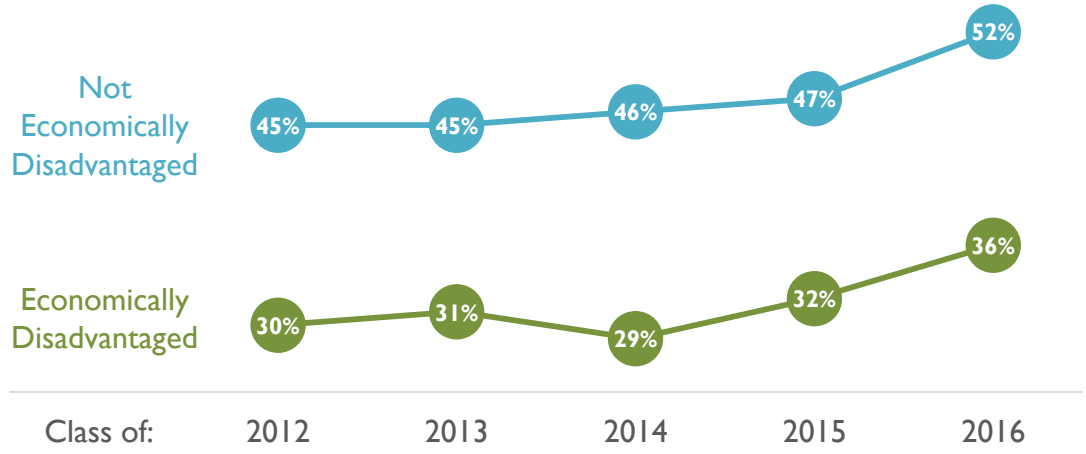
4 Years Passed: passed at least one course with a D or better in each of the 4 school years ending in graduation
"Other" includes American Indian, Black, Hispanic, Multiple

Economically disadvantaged graduates were less likely to pass 4 years of math or science.

4 Years of Mathematics Passed



4 Years of Science Passed



4 Years Passed: passed at least one course with a D or better in each of the 4 school years ending in graduation

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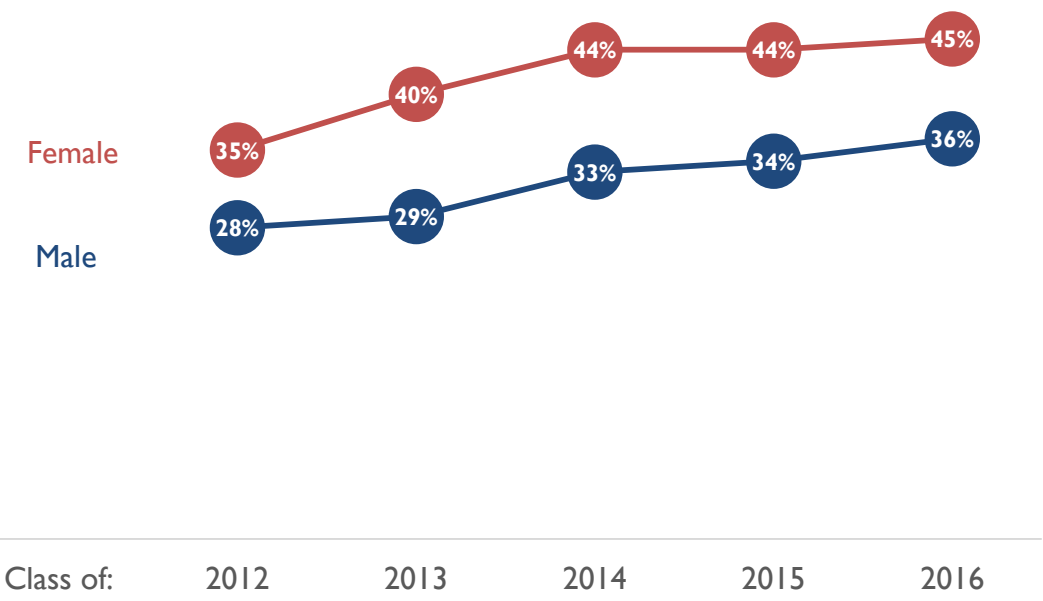
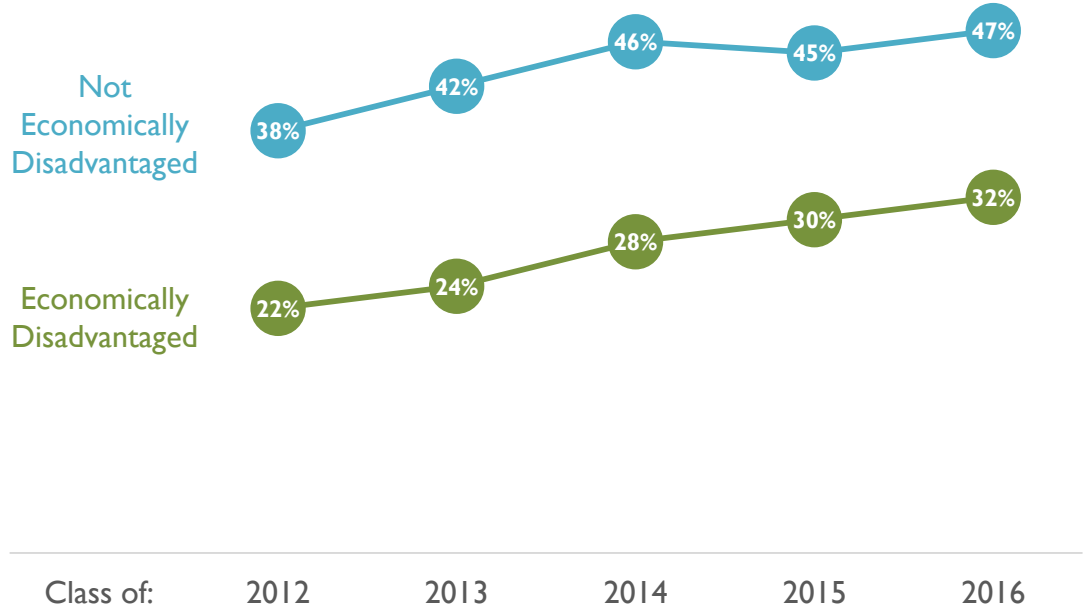
Female and not economically disadvantaged graduates were more likely to pass Algebra 3 or higher.

Gender



Economic Disadvantaged Status



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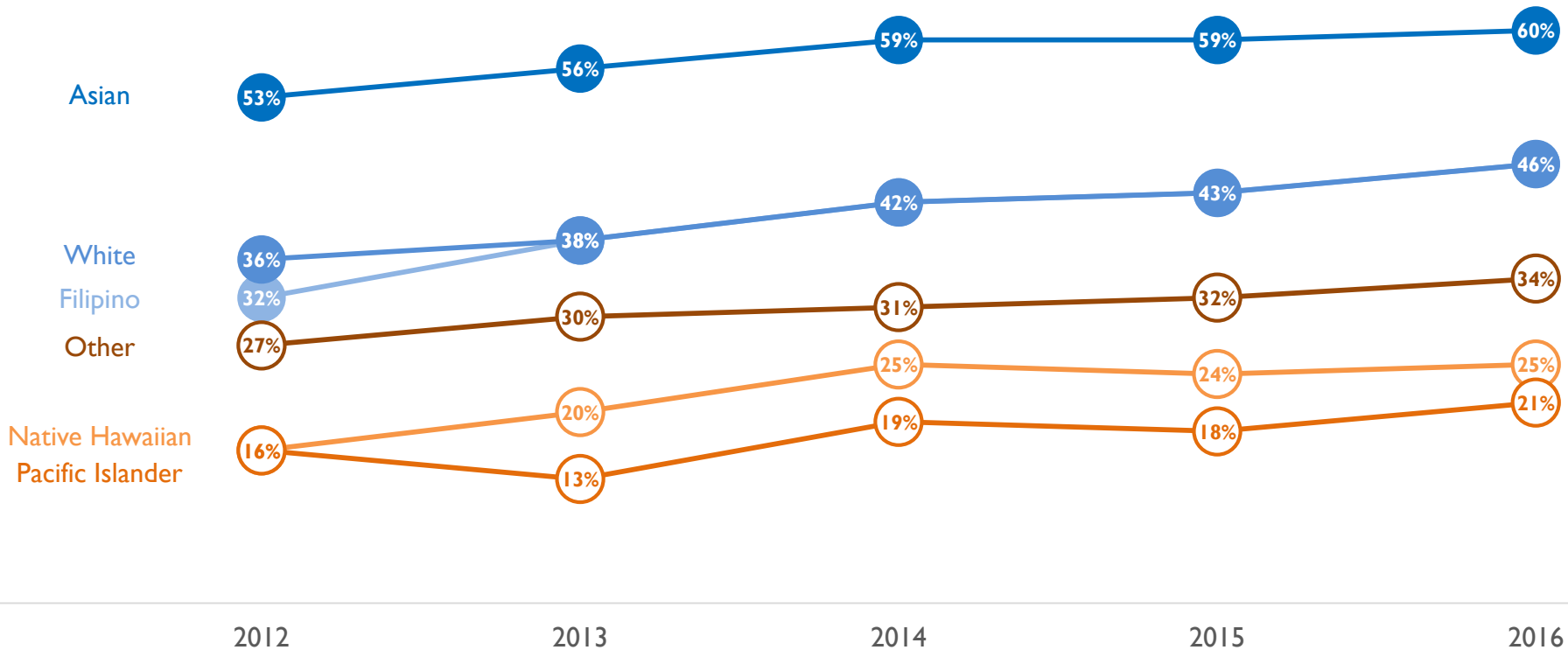
Asian graduates were most likely to pass Algebra 3 or higher.



"Other" includes American Indian, Black, Hispanic, Multiple

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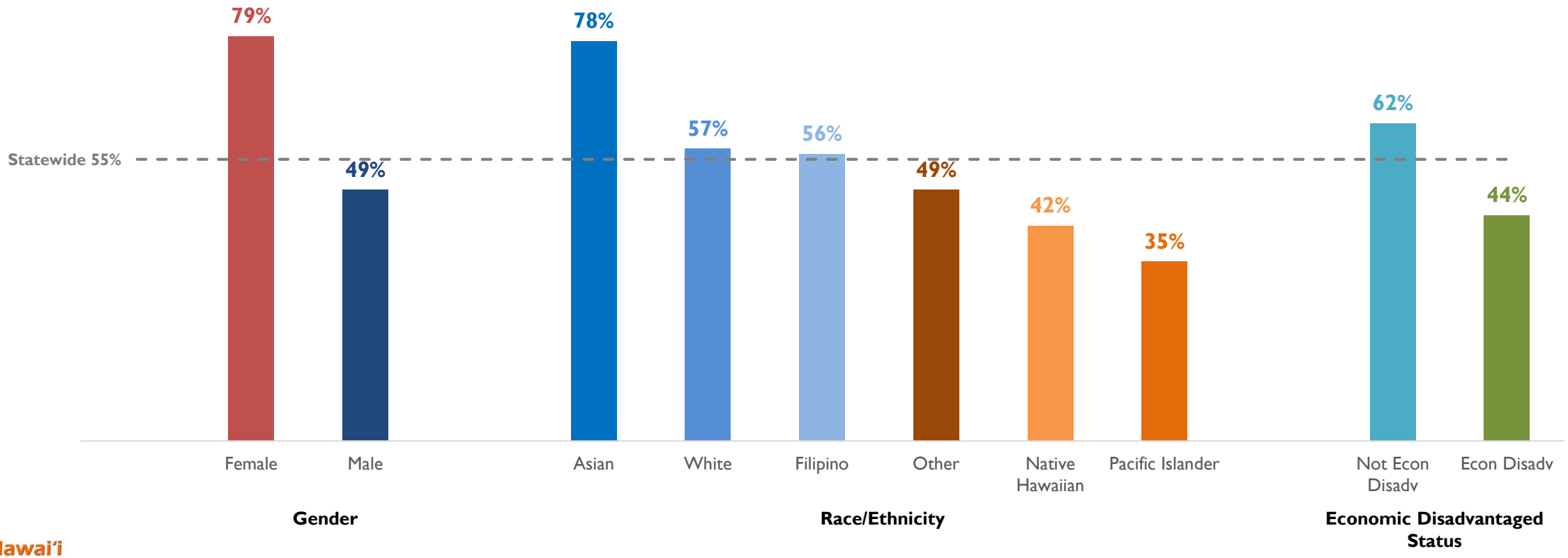
Female, Asian, or not economically disadvantaged graduates were more likely to enroll in college.

Class of 2012-2014, first fall college enrollment rate



"Other" includes American Indian, Black, Hispanic, Multiple

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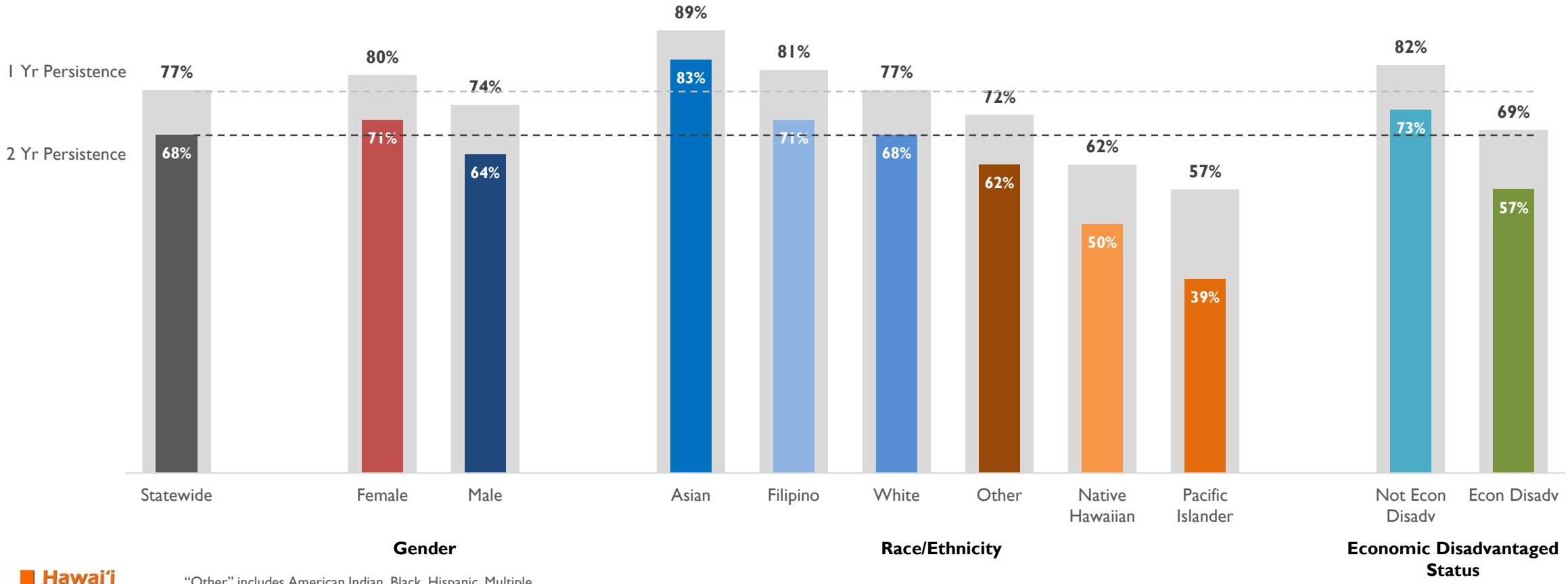
Female, Asian, or not economically disadvantaged graduates were more likely to persist in college.

Class of 2012-2014



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2 Yr Persistence: percent of graduates enrolled in college in the first fall after graduation who were still enrolled in college two years later (in the third fall).

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Final Discussion

What questions do you have?

Does anything surprise you?

Are there any issues of equity and access?

Next Steps or Recommendations

- Postsecondary perspective
- DOE perspective

THANK YOU

For DOE/NGSS Questions:

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