An Examination of Success and Retention of Students in MATH 1101 with Corequisite Support

Valerie Beaman-Hackle & Viktoriya Lanier
Middle Georgia State University
Learning Support Academy, March 23, 2018

- “In years past, many students arrived in higher education without the preparation or motivation needed to succeed, and colleges didn’t think much of them dropping out in significant numbers. These days, colleges have come to realize that society needs more of these students to succeed.”

-Scott Jaschik, member of the board of the Education Writers Association

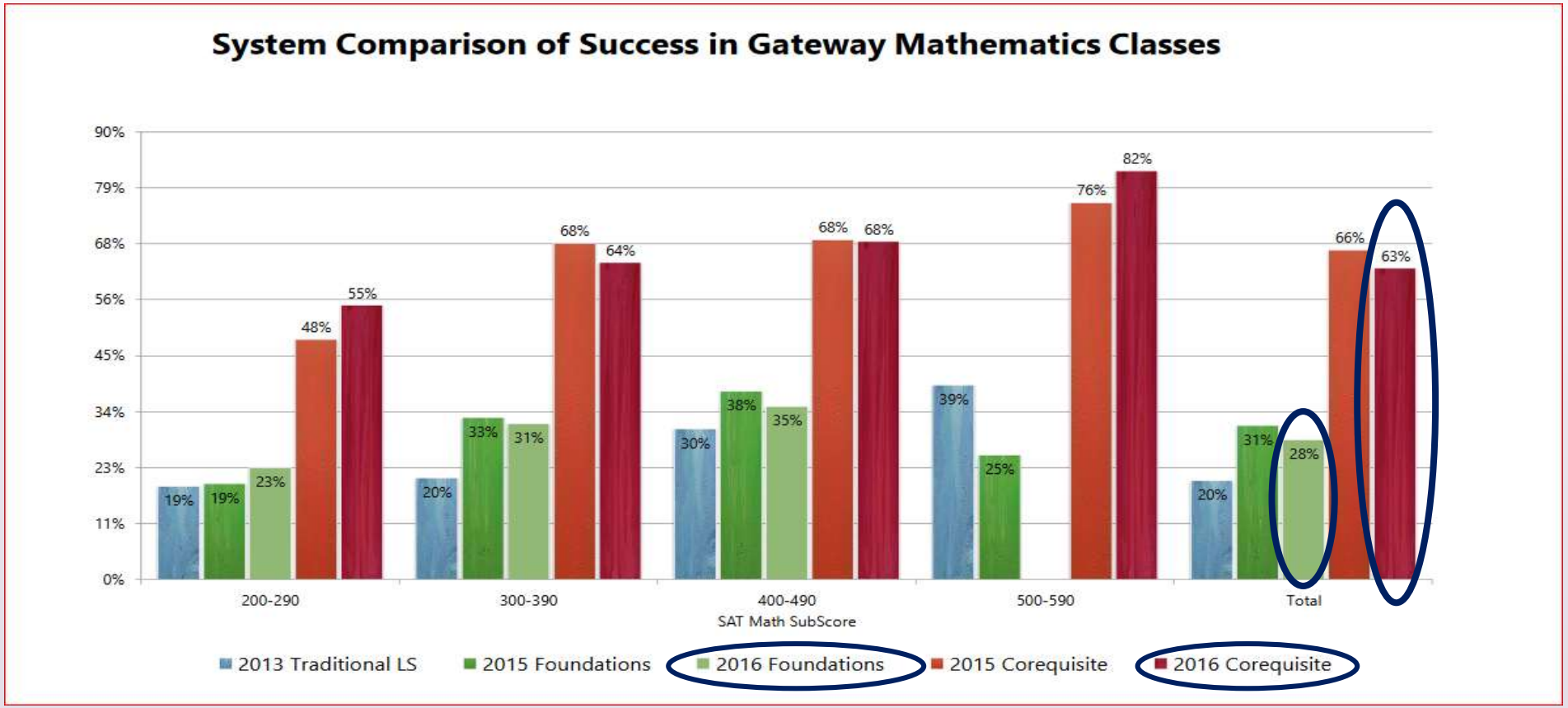
Not Just Georgia

- In addition to the data that Dr. Denley presented about USG students, a national study (Bailey, Jeong, and Cho, 2010) indicated that approximately 20% of all students assigned to traditional developmental math education courses completed their fist-year college-level math course within three years of starting college.

Reason to Reevaluate

- Placement issues
- Length of Learning Support Math (LSM) sequence
- Isolation of students in LSM courses
- Address Academic Mindset of LS students

From "Corequisite Academy Mathematics" Presentation by Dr. Denley at the 2017 Learning Support Academy



MATH 0998: Support for Mathematical Modeling

- Cross-sectional study—examining 1-semester success rates rather than the 1-year longitudinal success rates that USG did
- Examined Fall 2016 cohort of students enrolled in both the college level math class (MATH 1101) and the corequisite support (MATH 0998)
- N= 164, with average class size =12.6

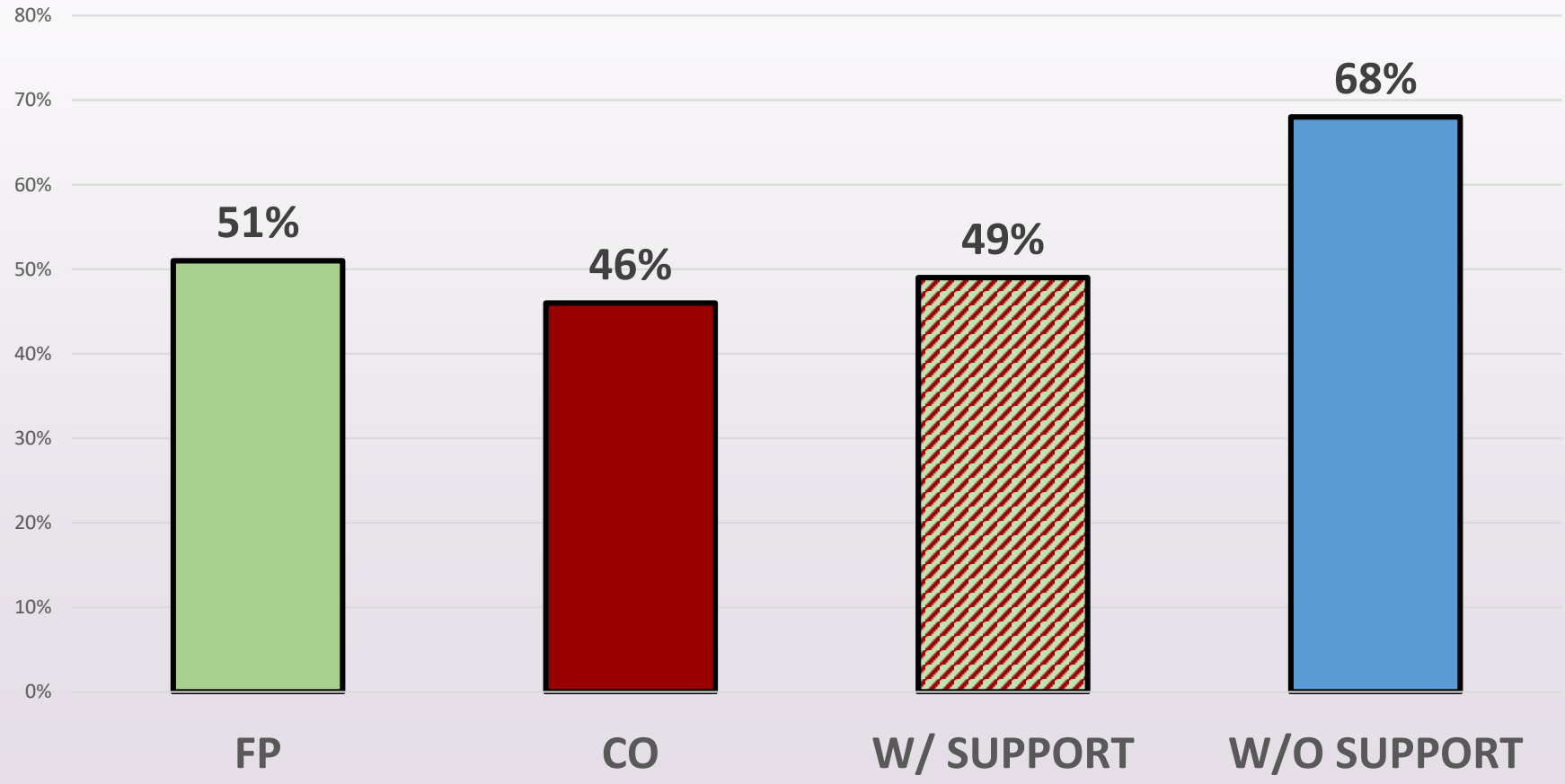
Foundations Prepared (FP) vs. Corequisite Only (CO)

- Foundations-prepared (FP) defined as group who took MATH 0988 Foundations for Math Modeling (or equivalent) before Fall 2016, then took both MATH 0998 and MATH 1101 during the Fall 2016 semester.
  - N_{FP} = 82
- Corequisite only (CO) defined as group who had no previous Foundations MATH courses before Fall 2016, and who took both MATH 0998 and MATH 1101 during the Fall 2016 semester.
  - N_{CO} = 82

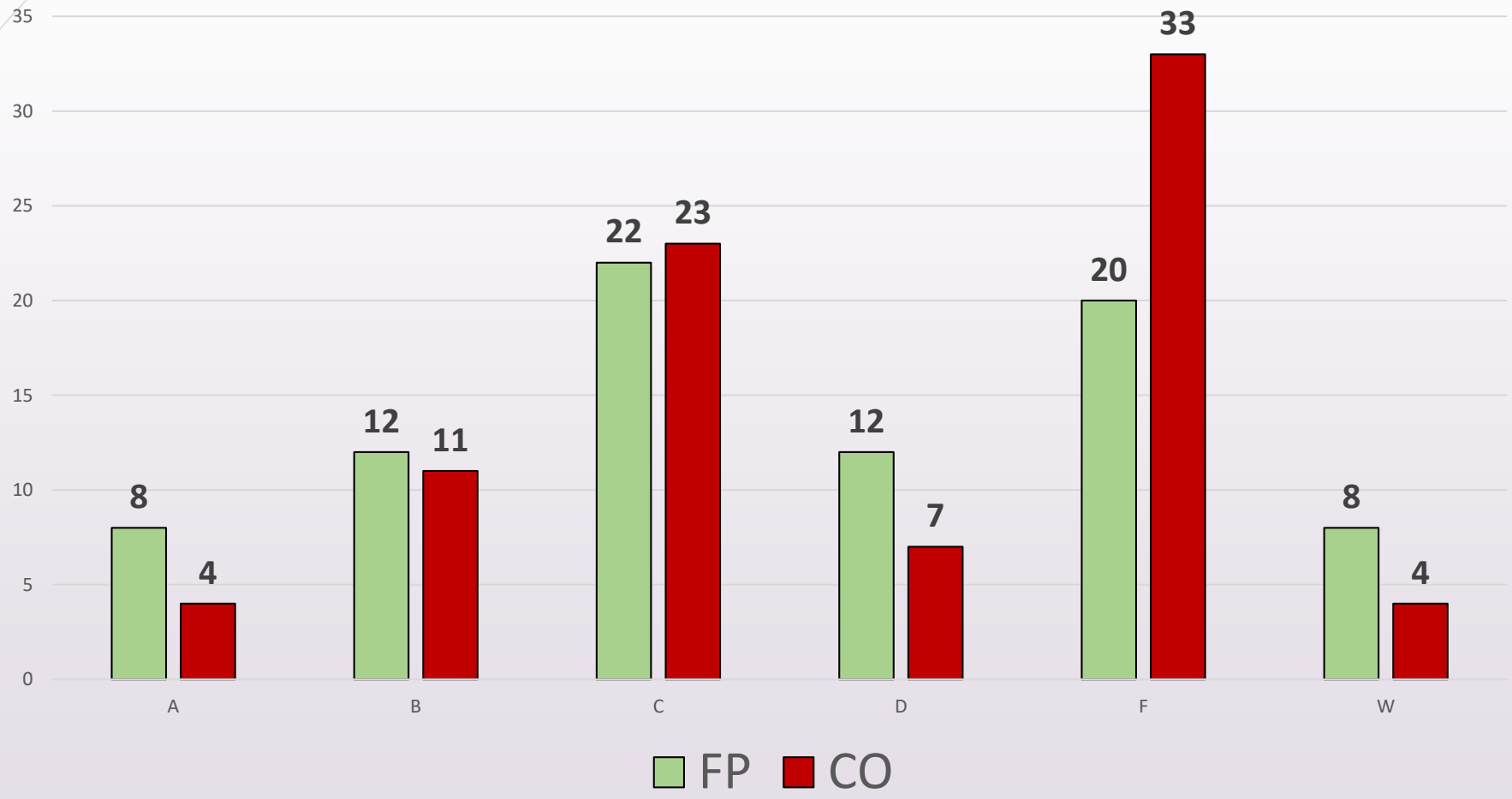
One-semester success rates: Fall 2016 Students earning a grade of A,B, or C

- In Fall 2016, 80 of 164, or **49%**, of **all MATH 0998** students successfully completed MATH 1101
- In Fall 2016, 42 of 82, or **51%** of **FP** (foundations-prepared) students successfully completed MATH 1101
- In Fall 2016, 38 of 82, or **46%** of **CO** (corequisite-only) students successfully completed MATH 1101

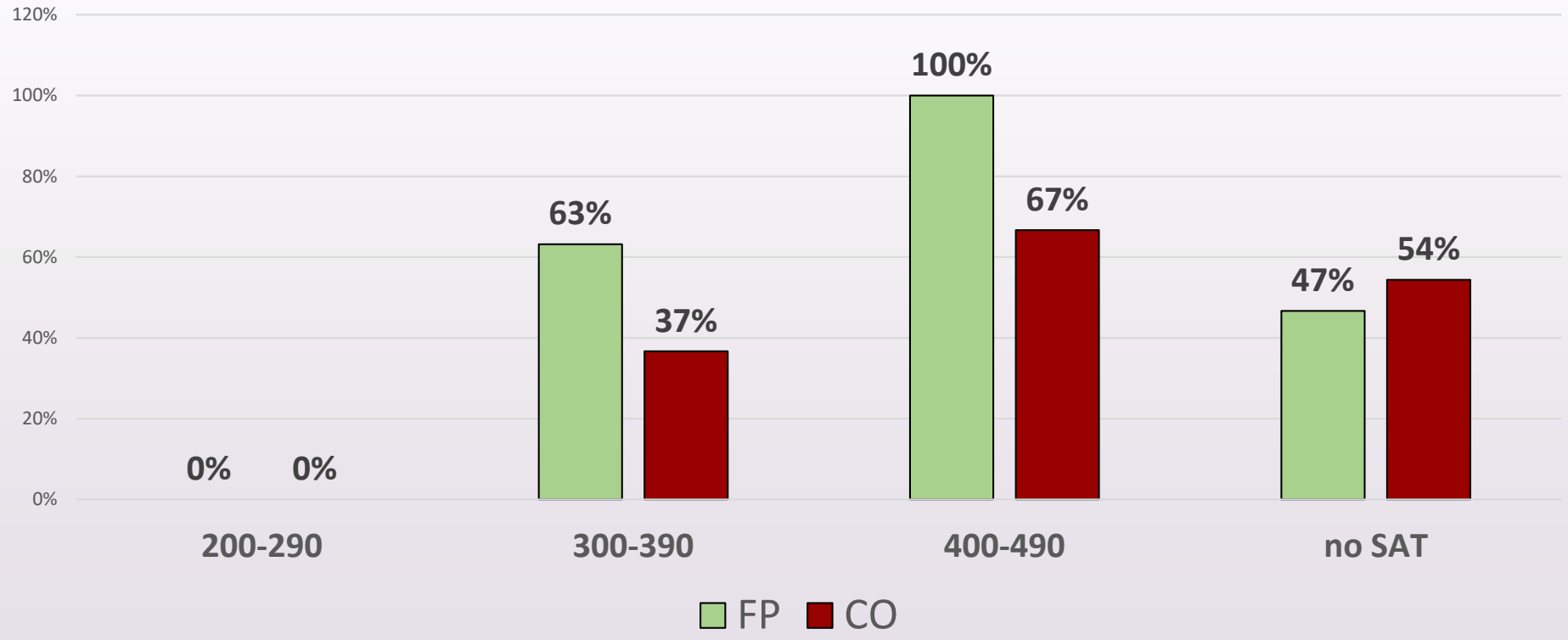
Fall 2016 MATH 1101 Success Rates (Grades of A,B,C)



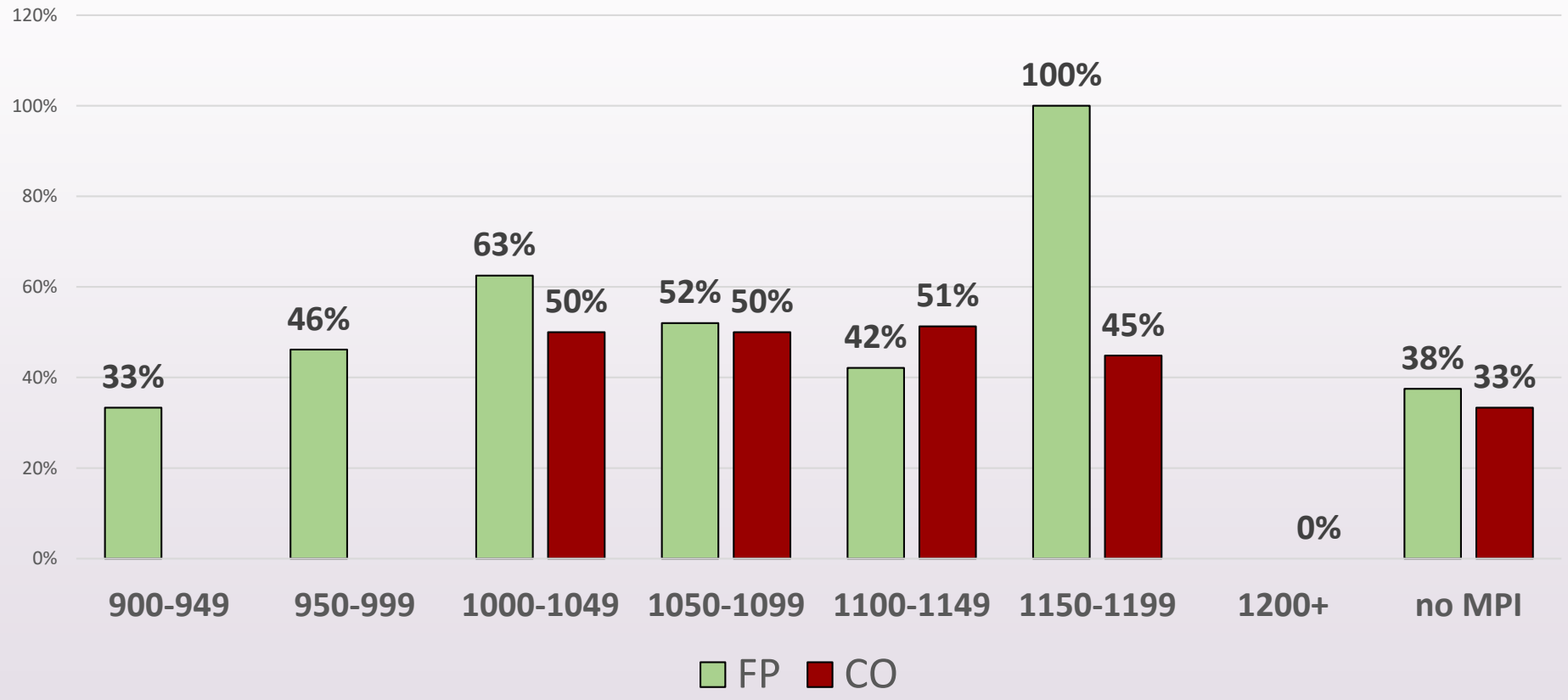
MATH 1101 Grade Distribution by Cohort



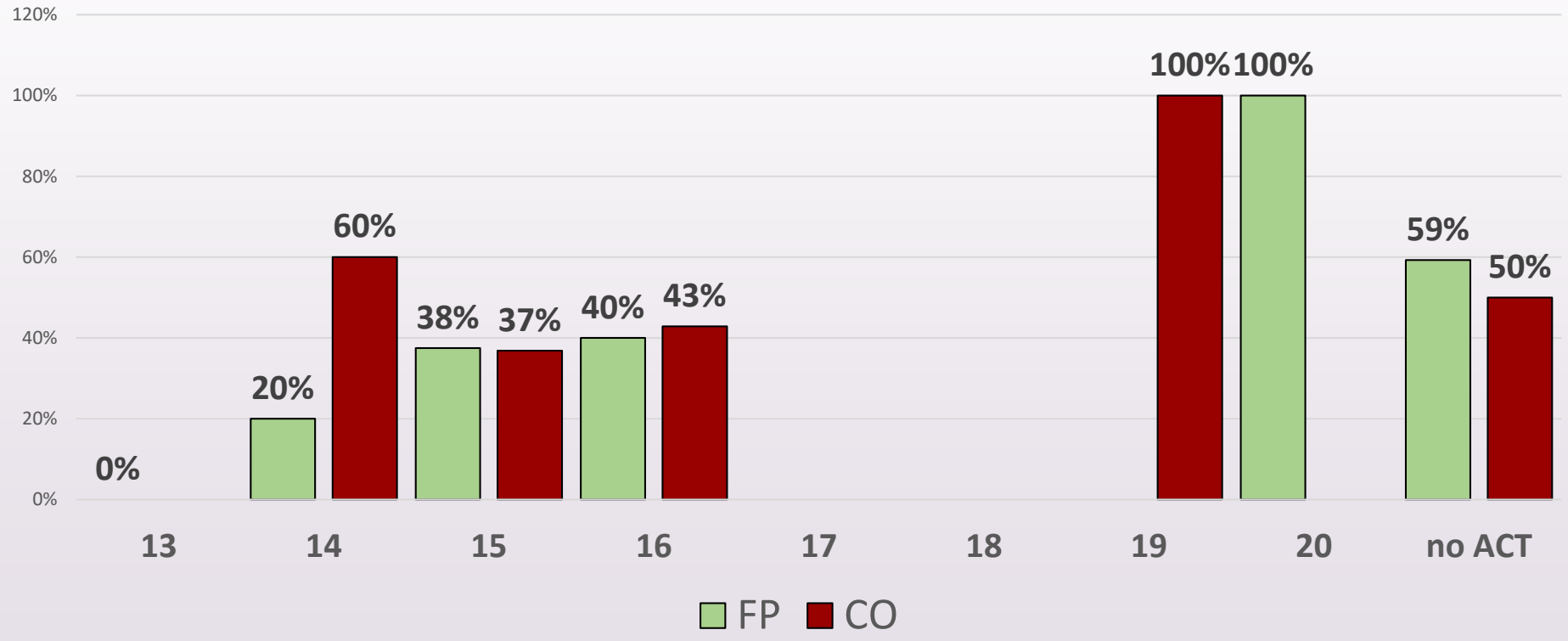
Success Rates by SAT and Cohort



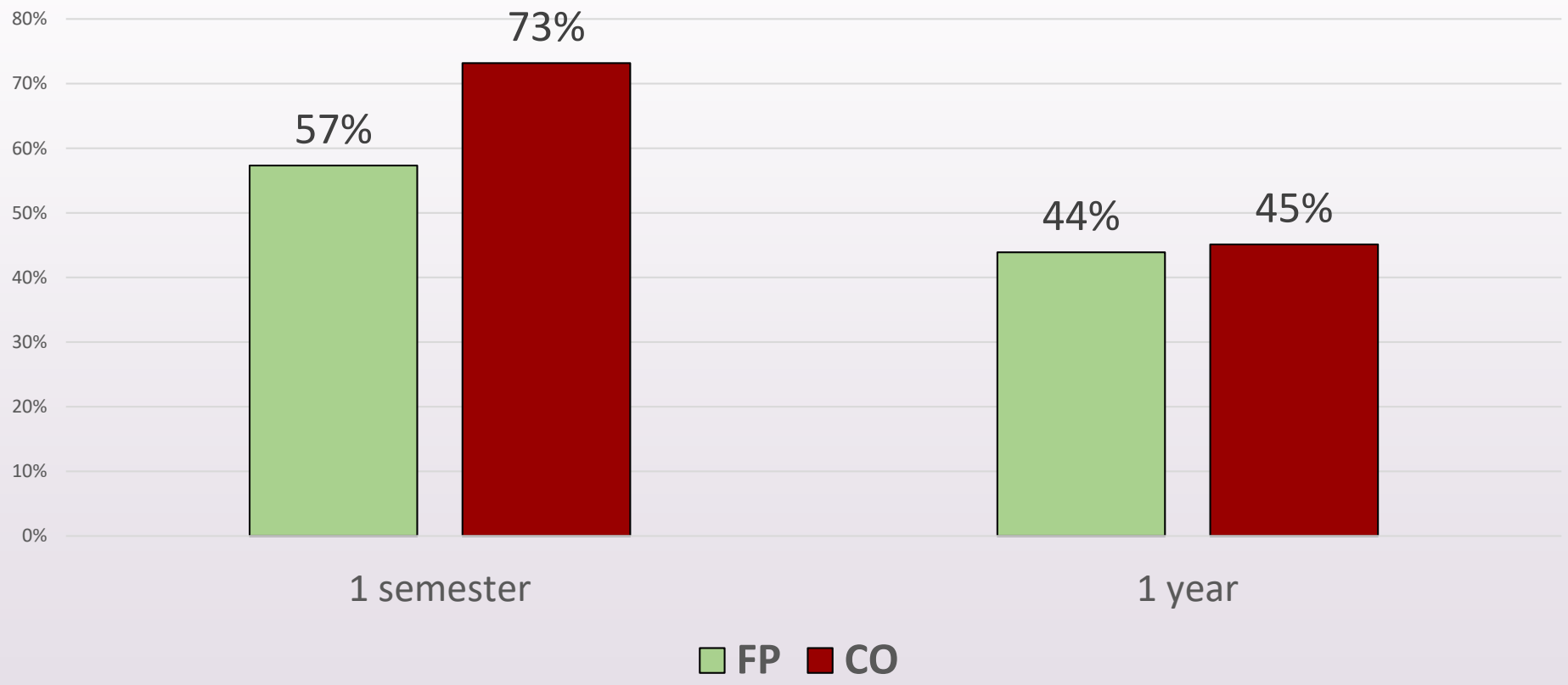
Success Rates by MPI and Cohort



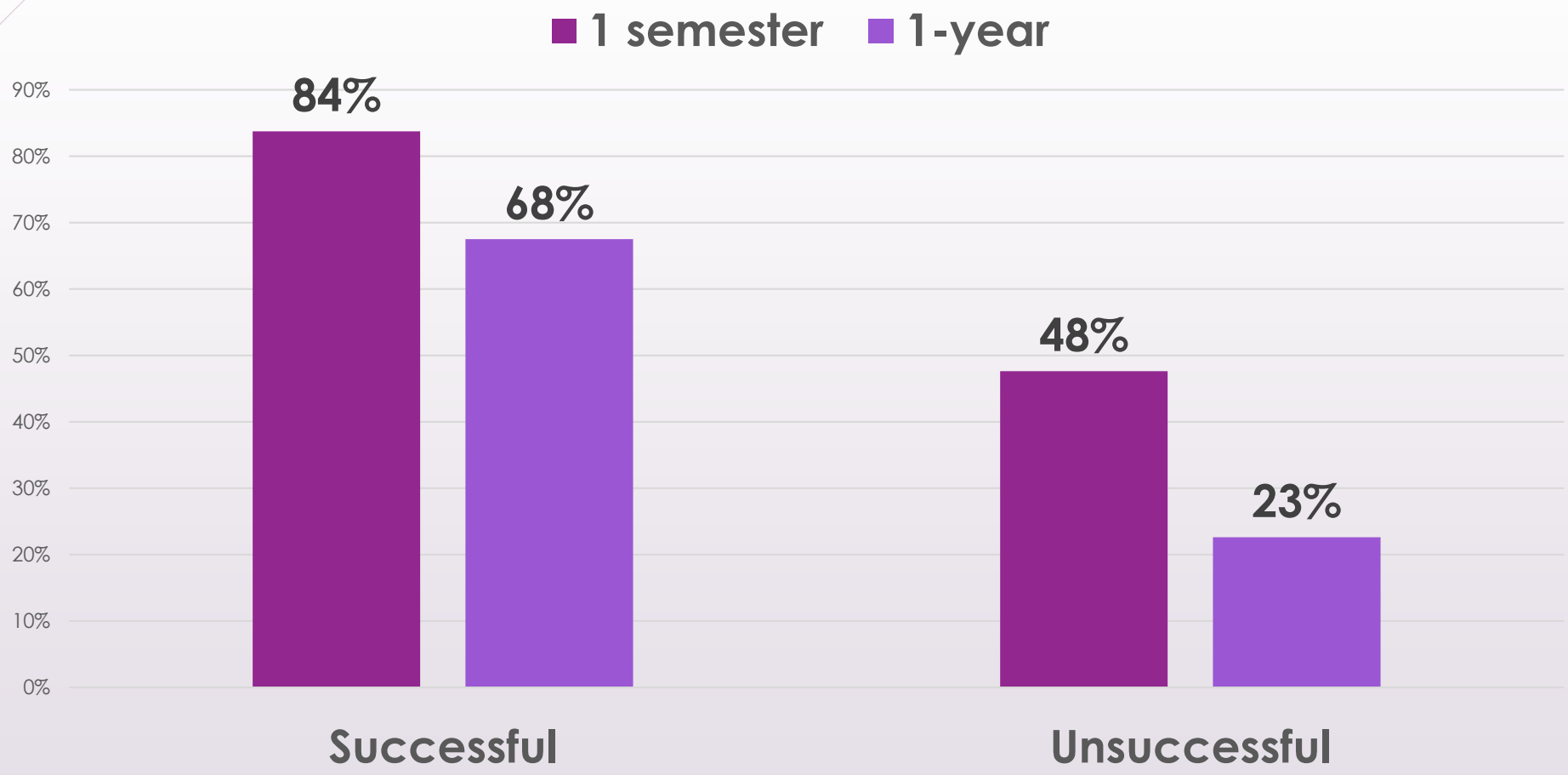
Success Rates by ACT and Cohort



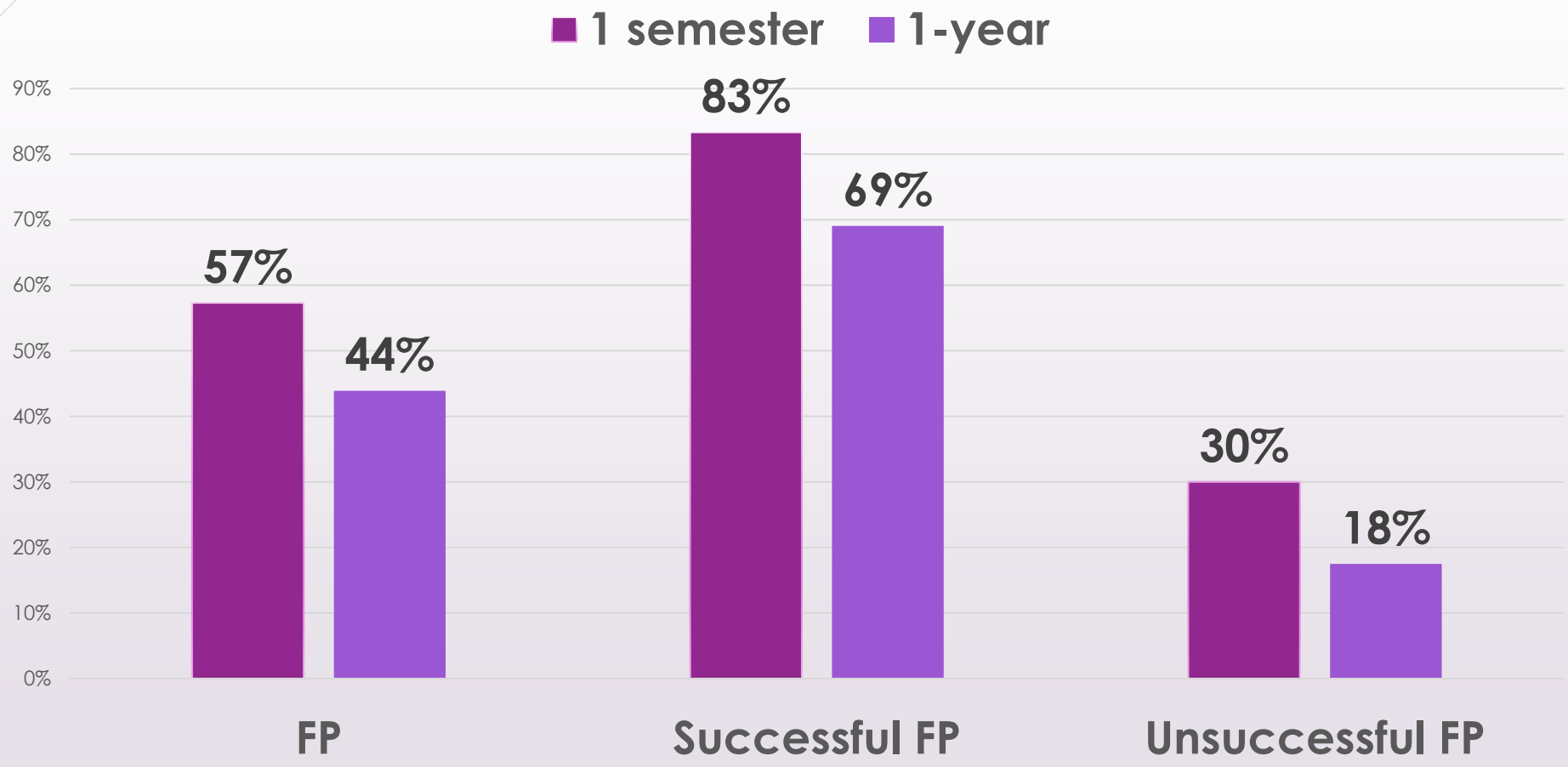
Retention Rates by Cohort



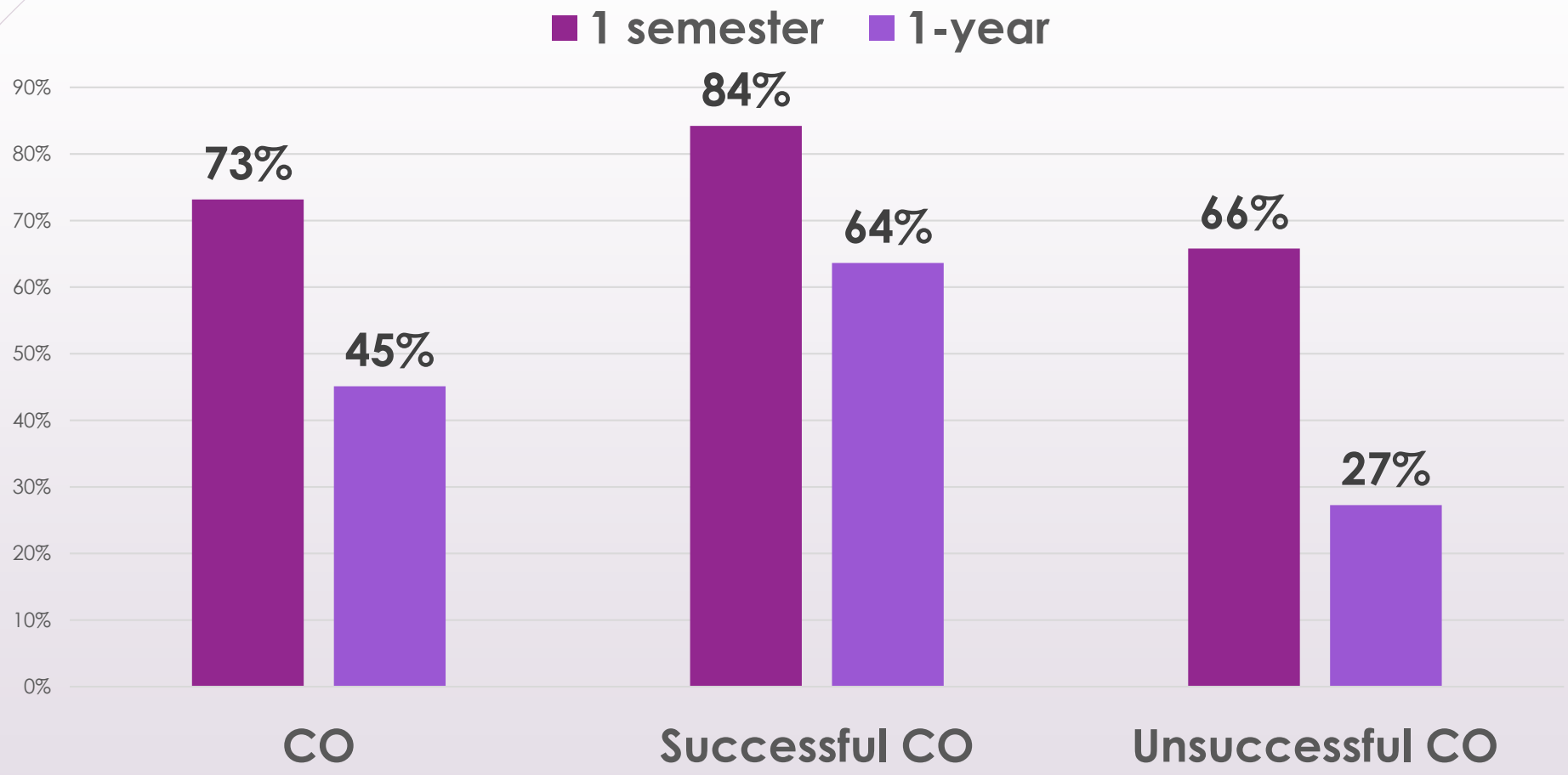
Retention Rates by Fall 2016 MATH 1101 Success



Breakdown of FP Retention Rates



Breakdown of CO Retention Rates



Retention Rate Summary

- 1-semester retention rate higher for CO (73%) than FP (57%) but after a year, virtually equal CO (45%) and FP (44%)
- Not surprisingly, difference in retention rates between those students who successfully passed their MATH 1101 than those who didn't (84% vs. 48% for 1-semester, and 68% vs. 23% for 1-year)
- Unsuccessful CO were more likely to be retained than unsuccessful FP after 1-semester (66% CO vs. 30% FP) and after 1-year (27% CO vs. 18% FP)

What We Learned & Questions for further study

- FP students pass the gateway college level math class at a higher rate (51.2% vs. 46.3%) than CO students
- FP and CO students passed MATH 1101 at lower rate than non-learning support students (49% vs. 68%). Is this difference related more to math skill or academic mindset?
- Some students were probably misplaced/misadvised
- Appreciate Institutional Research Offices or other departments who provide accurate data!

Questions for Further Study

- The success rates calculated in this study represented a one-semester snapshot. What are the one-year college math completion rates at MGA?
- Would results be different if Traditional vs. Non-Traditional data was analyzed?
- How will these semester success rate compare to those of the Fall 2018 semester with the new policy that places all Learning Support students directly in the corequisite?

Can't Be Emphasized Enough…

MGA has been using the corequisite model (with foundations) for several years now and we have learned that:

- As been stated in multiple presentations, having students in the corequisite class all be from the same college level math class is a necessity. With help from our IT/BANNER folks and awesome advisors, this is possible at MGA.
- Small class sizes have never been more imperative, with corequisite students having even a wider variety of math skills and academic mindsets than ever before.

Fall 2018 Challenges

- How many sections to schedule?
- Do we have enough faculty?
- Are our contingency plans adequate?
- How will our success rates in MATH 1101 be impacted?

We Are Not Alone in Adopting and Implementing the Corequisite Model

- **GADE**: Georgia Association for Developmental Education

  http://www.gadeonline.net/

- **NADE**: National Association for Developmental Education

  ATLANTA will host the **2019 NADE Conference March 6-9**

  https://thenade.org/