# Milestones and Indicators of Success: A Framework for Improving Student Outcomes
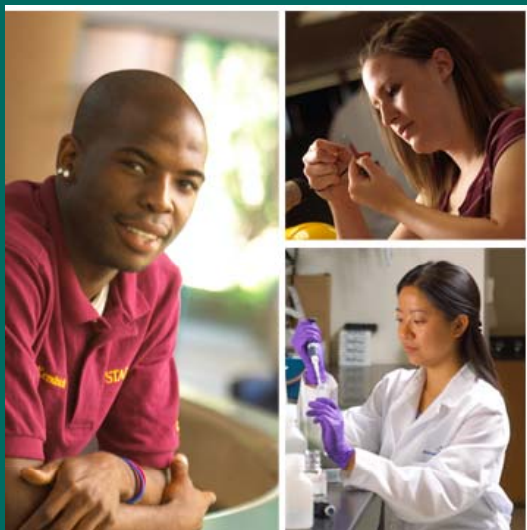
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Presentation to:

National Association of System Heads (NASH)

Access to Success (A2S)

Leading Indicators Project

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# Key Points

- Traditional measures of student outcomes are insufficient
- Research literature offers important information
- Framework for deeper analysis
- Description of our analyses
- Results can guide changes in policy and practice

# Traditional Measures Insufficient

- Generally limited to retention and graduation rates, and transfer for community colleges

- Ignore intermediate outcomes

- Provide no information on students' patterns of enrollment and success

- Offer no guidance on
  - Diagnosing where and why students fall off the pathway
  - How to change in policy/practice to increase degree completion

# Research Literature a Valuable Source of Information

- Began with literature review on student success – both 4-yr and 2-yr institutions
- Consensus that graduation most likely when:
  - Higher income
  - Parents went to college
  - Good academic preparation
  - Enroll soon after high school graduation
- More helpful: research points to achievements along the college pathway that may give students momentum, and more successful academic patterns

# A Framework for Better Analysis

- *Milestones*:  measurable, intermediate educational achievements students reach along the path to degree completion
- *Indicators of Success*:  measurable academic patterns that students follow (in addition to continued progression along milestones) that predict the likelihood they will reach milestones and ultimately earn a degree

| Milestones | Success Indicators |
|---|---|
| • Retention<br>• Complete needed remediation<br>• Transition to college-level coursework<br>• Earn one year of college-level credits<br>• Complete general education (GE)<br>• Complete a community college transfer curriculum<br>• Transfer from community college to university<br>    • Without completing curriculum<br>    • After completing curriculum<br>• Complete certificate or degree | **Remediation:**<br>• Begin coursework in first term<br>**Gateway Courses:**<br>• Complete college-level math/English in the first year or two<br>• Complete a college success course<br>**Credit Accumulation and Related Academic Behaviors:**<br>• High rate of course completion<br>• Complete 20-30 credits in first year<br>• Earn summer credits<br>• Enroll full time<br>• Enroll continuously, without stopouts<br>• On-time registration for courses<br>• Maintain adequate academic performance |

# California Community Colleges (CCC)

## Description of Cohort

- ❑ All first-time credit students in 2000-01, tracked over 7 years through 2006-07
- ❑ Subset of "degree seekers" (> 6 units in year 1); 63% of total cohort
- ❑ N = 247,493
- ❑ Limitations – no info on SES, academic prep

## Data Files

1. Student information
2. Course enrollments over the 7 years, by term
3. Course information
4. Degrees, certificates awarded within that period
5. Transfers to universities within that period
6. Financial aid (not very useful)

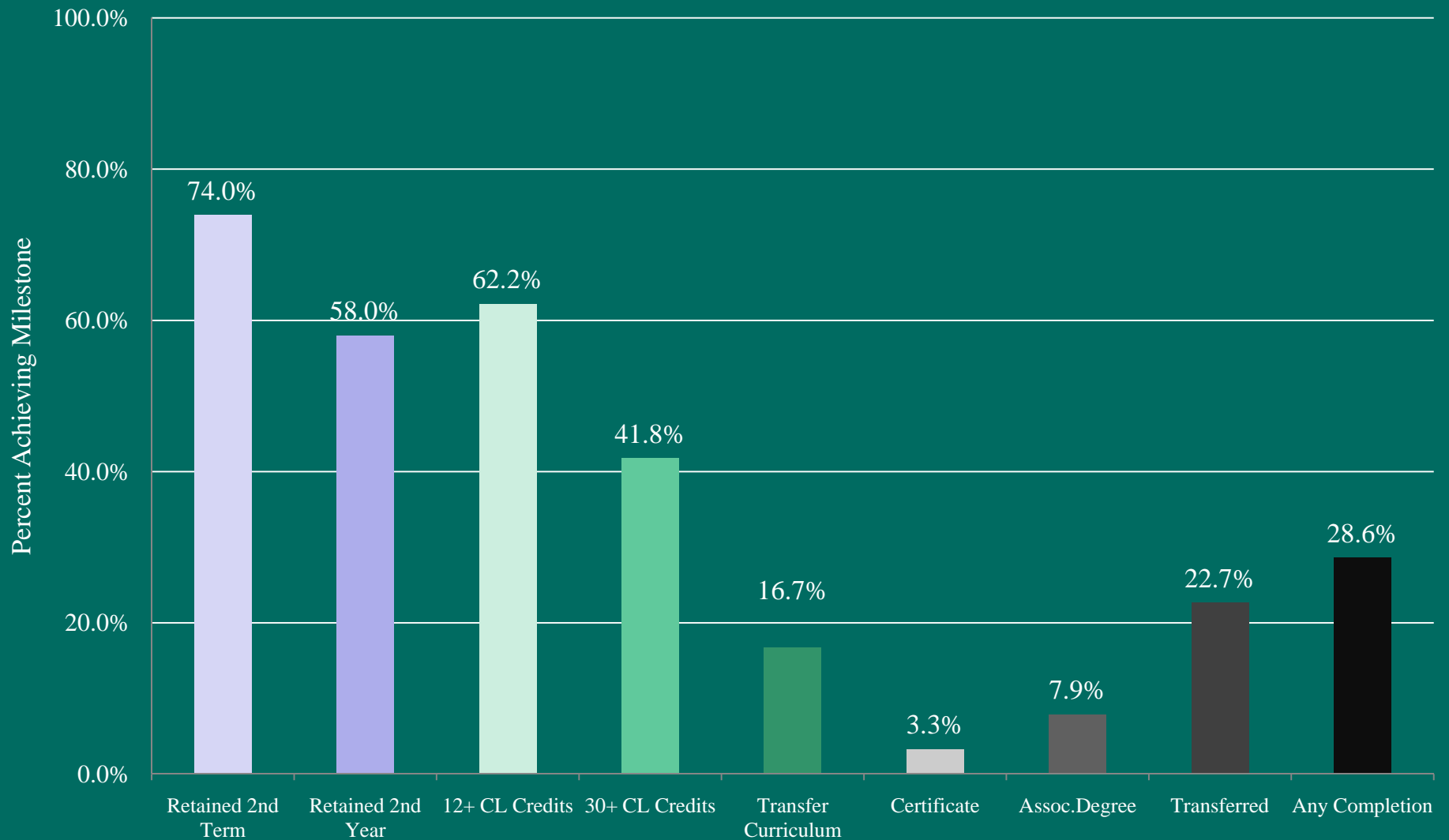# State University System of Florida (SUSF)

## Description of Cohort

- ❑ All first-time freshmen in 1999-2000, tracked over 8 years through 2006-07
- ❑ N=30,497
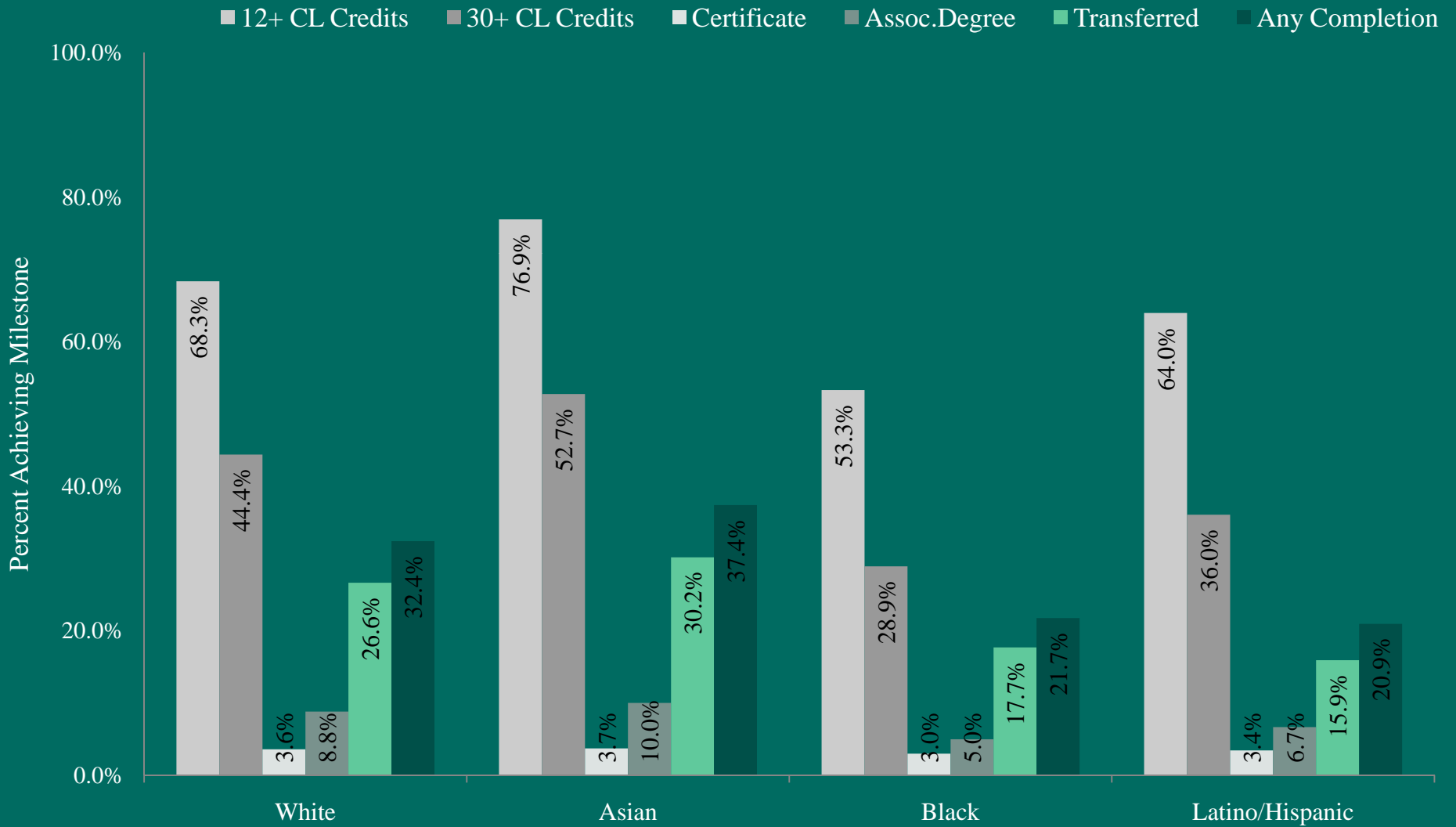- ❑ Limitations – no info on SES

## Data Files

1. Student information
2. Course enrollments over the 8 years, by term
3. Enrollment information by term
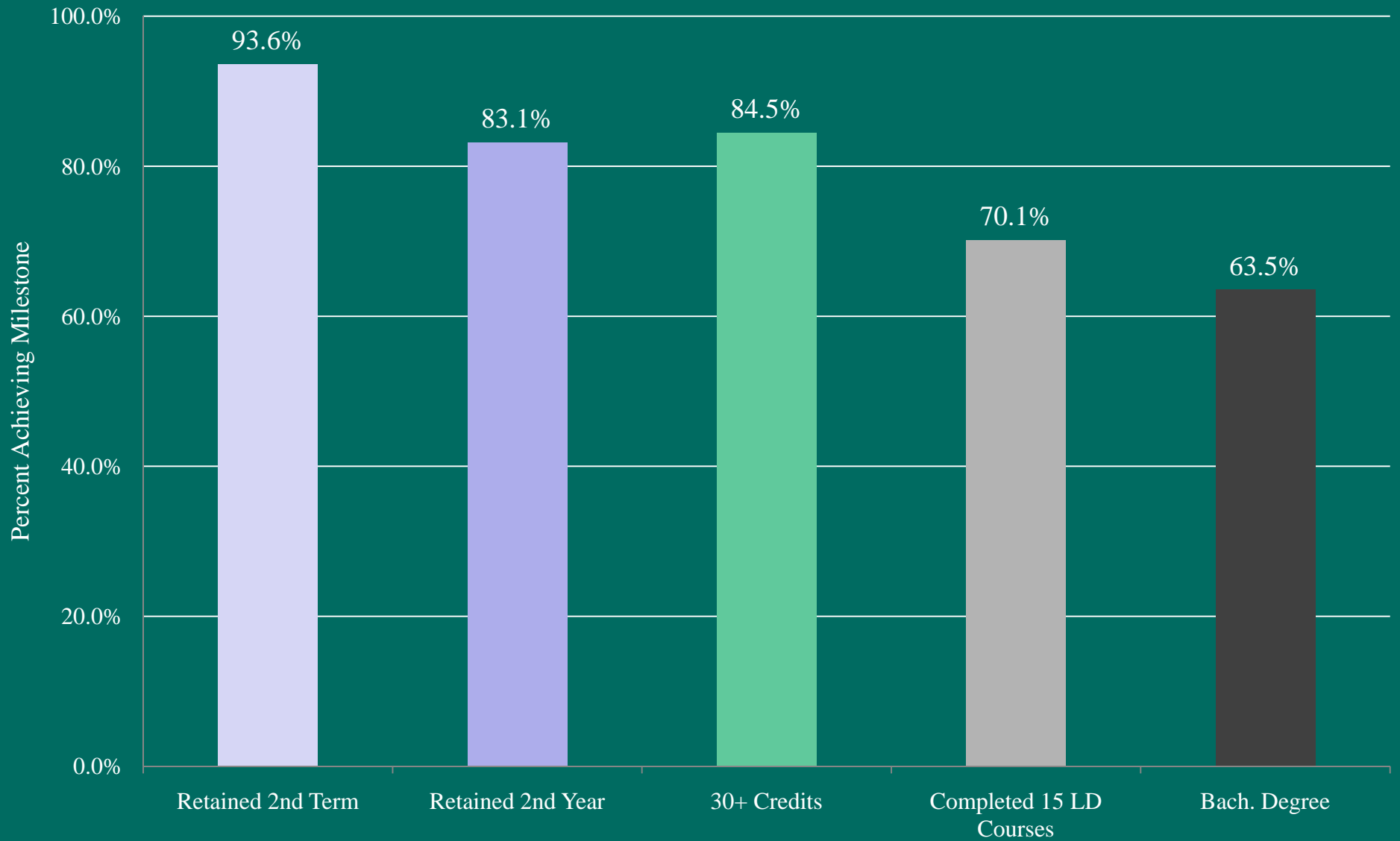4. Degrees earned
5. Financial aid

# Milestone Achievement among Degree Seekers in the CCC

**Percent Achieving Milestone**

| Milestone | Percent |
|-----------|---------|
| Retained 2nd Term | 74.0% |
| Retained 2nd Year | 58.0% |
| 12+ CL Credits | 62.2% |
| 30+ CL Credits | 41.8% |
| Transfer Curriculum | 16.7% |
| Certificate | 3.3% |
| Assoc.Degree | 7.9% |
| Transferred | 22.7% |
| Any Completion | 28.6% |

# Milestone Achievement among CCC Degree Seekers by Race/Ethnicity

Legend: ■ 12+ CL Credits  ■ 30+ CL Credits  ■ Certificate  ■ Assoc.Degree  ■ Transferred  ■ Any Completion

Y-axis: Percent Achieving Milestone (0.0% – 100.0%)

| Milestone | White | Asian | Black | Latino/Hispanic |
|---|---|---|---|---|
| 12+ CL Credits | 68.3% | 76.9% | 53.3% | 64.0% |
| 30+ CL Credits | 44.4% | 52.7% | 28.9% | 36.0% |
| Certificate | 3.6% | 3.7% | 3.0% | 3.4% |
| Assoc.Degree | 8.8% | 10.0% | 5.0% | 6.7% |
| Transferred | 26.6% | 30.2% | 17.7% | 15.9% |
| Any Completion | 32.4% | 37.4% | 21.7% | 20.9% |

# Milestone Achievement among SUSF Freshmen



Percent Achieving Milestone

- Retained 2nd Term: 93.6%
- Retained 2nd Year: 83.1%
- 30+ Credits: 84.5%
- Completed 15 LD Courses: 70.1%
- Bach. Degree: 63.5%

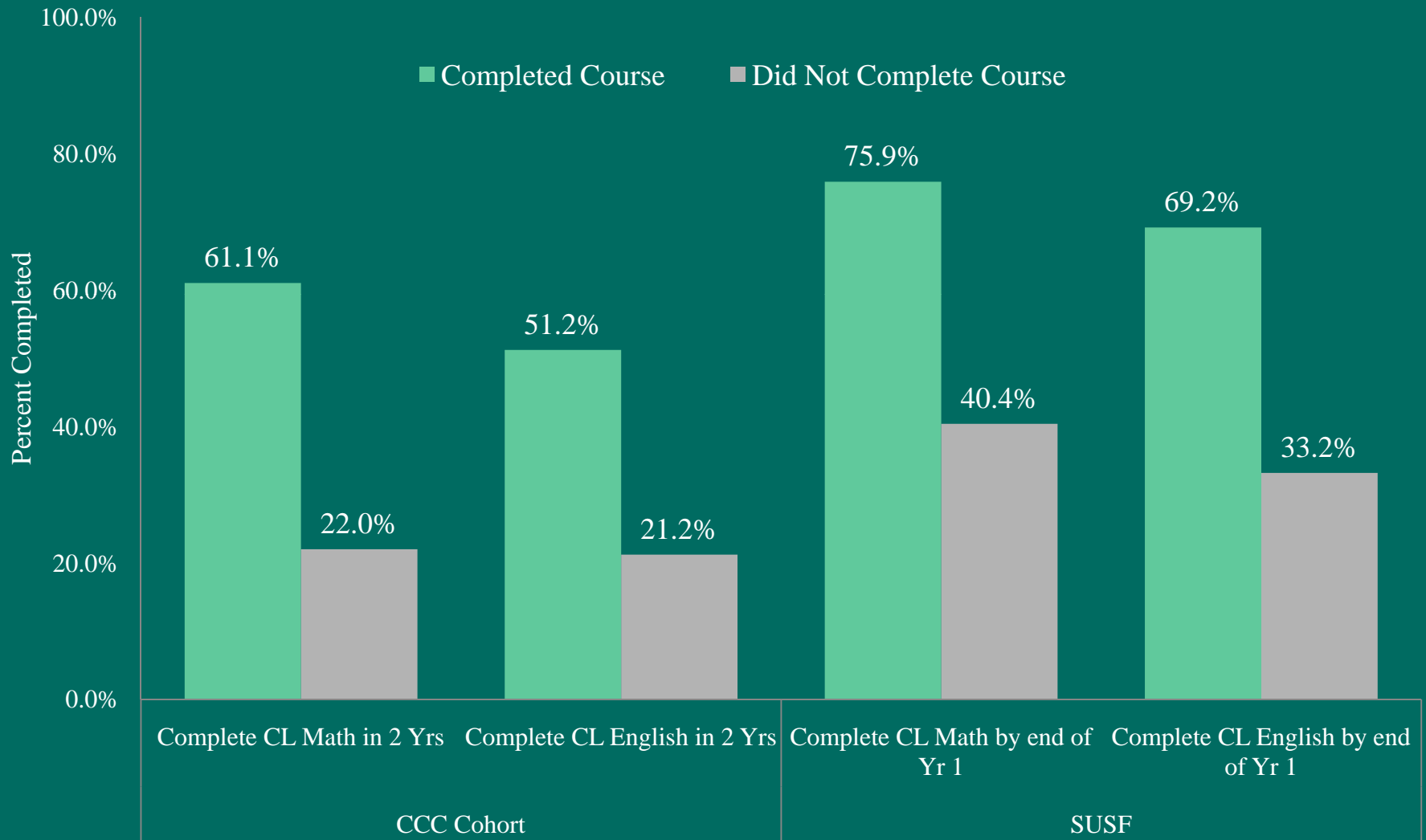Milestone Achievement among SUSF Freshmen by Race/Ethnicity
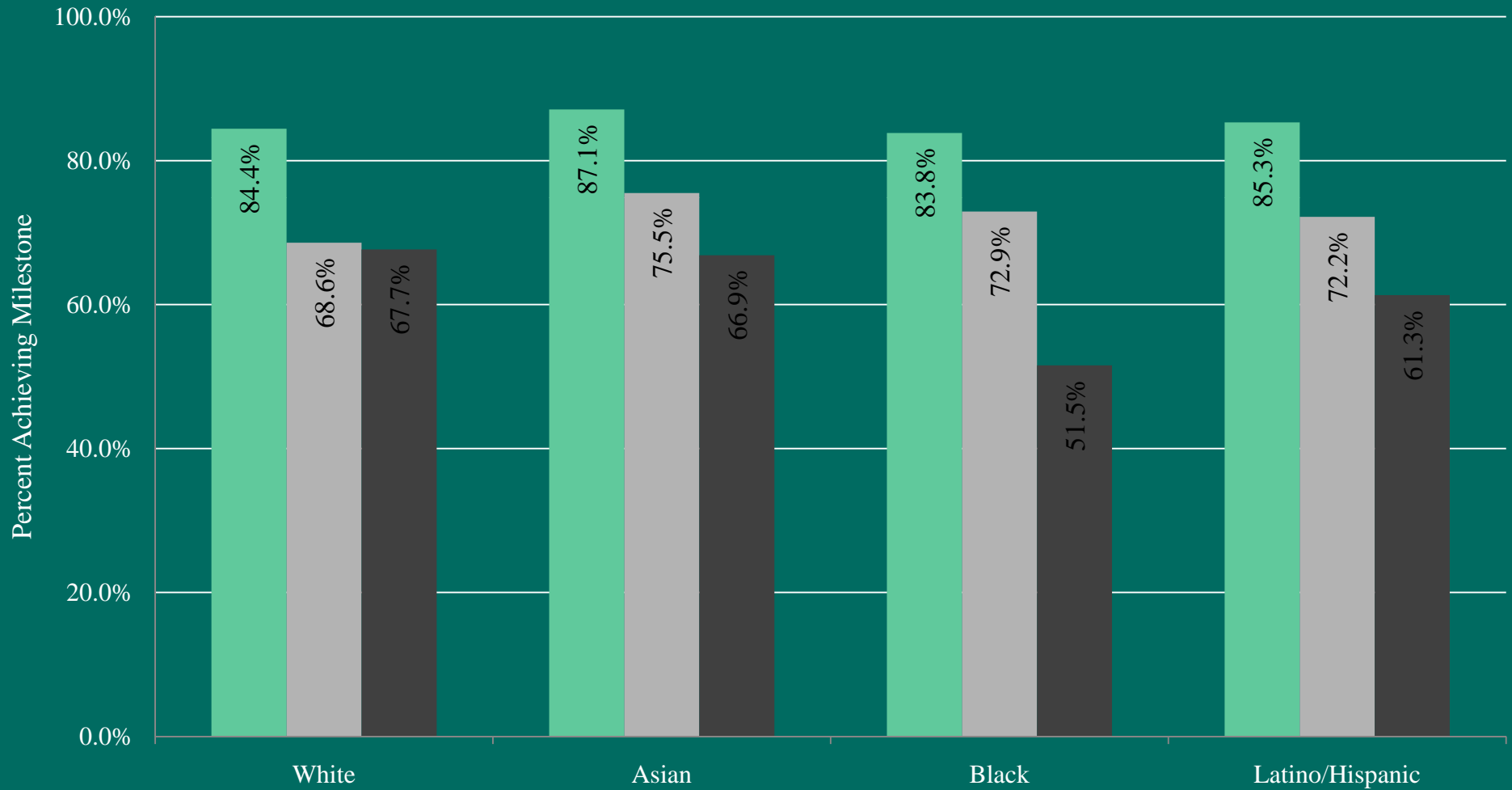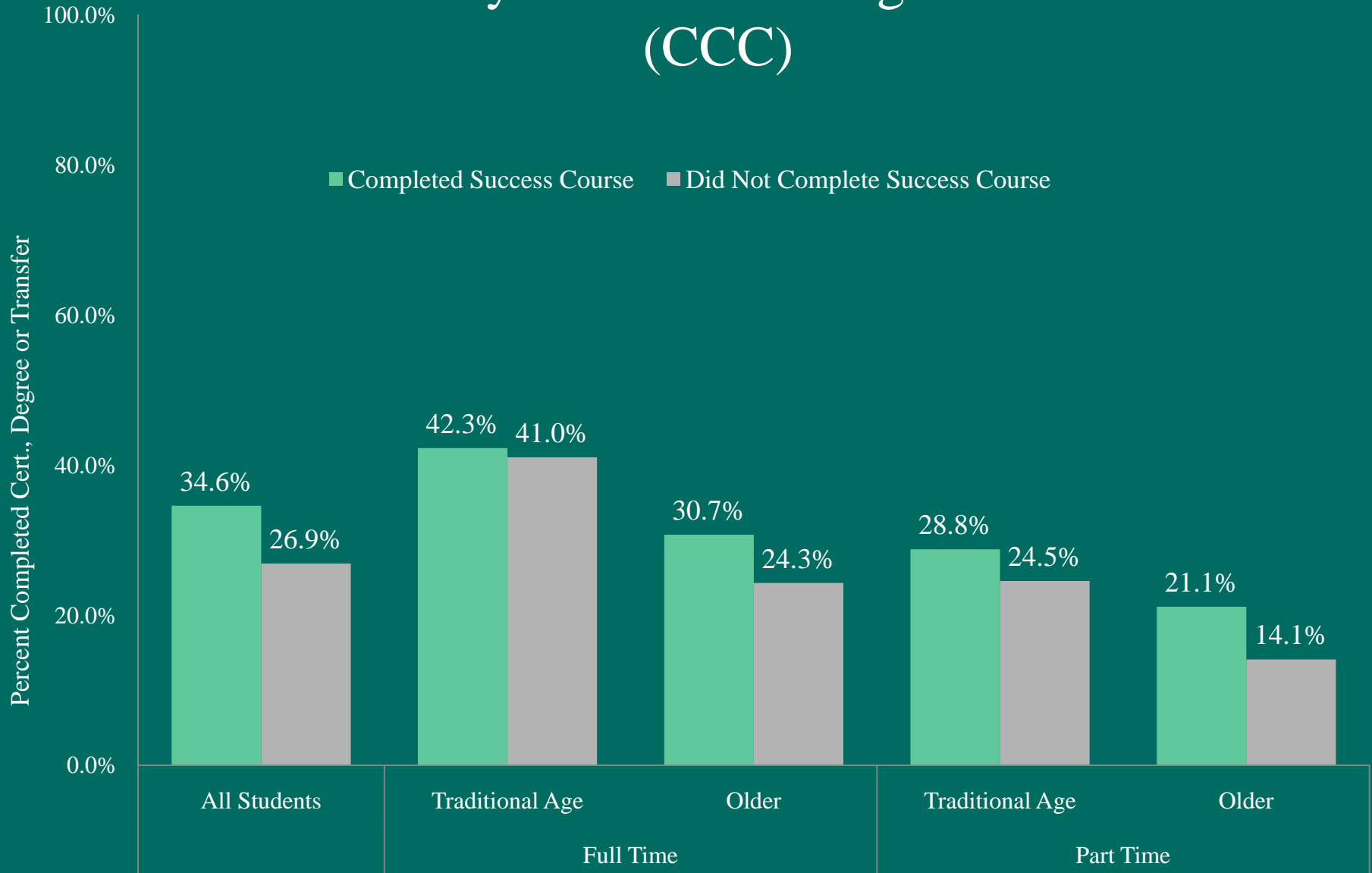
# Success Indicators Predict Completion

Reminder – success indicators relate to student enrollment and course-taking patterns in three areas:

- Remediation (insufficient data)
- Gateway Courses
- Credit Accumulation and Related Academic Behaviors

# Gateway Courses:  Math and English



Chart legend: ■ Completed Course   ■ Did Not Complete Course

Y-axis: Percent Completed (0.0% to 100.0%)

**CCC Cohort**
- Complete CL Math in 2 Yrs: 61.1% / 22.0%
- Complete CL English in 2 Yrs: 51.2% / 21.2%

**SUSF**
- Complete CL Math by end of Yr 1: 75.9% / 40.4%
- Complete CL English by end of Yr 1: 69.2% / 33.2%

# Gateway Courses:  College Success (CCC)
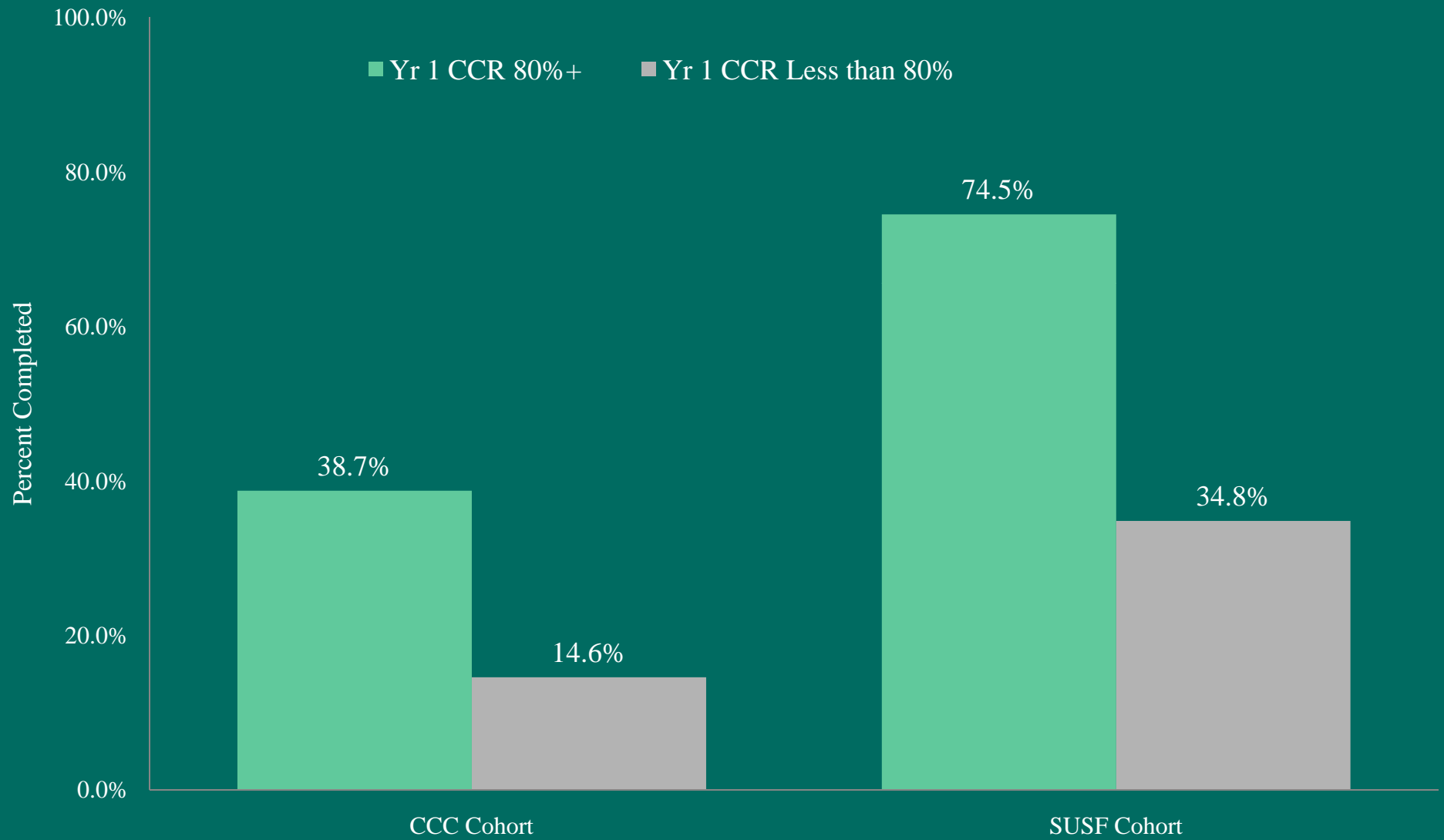
Credit Accumulation: First-Year Credits Earned
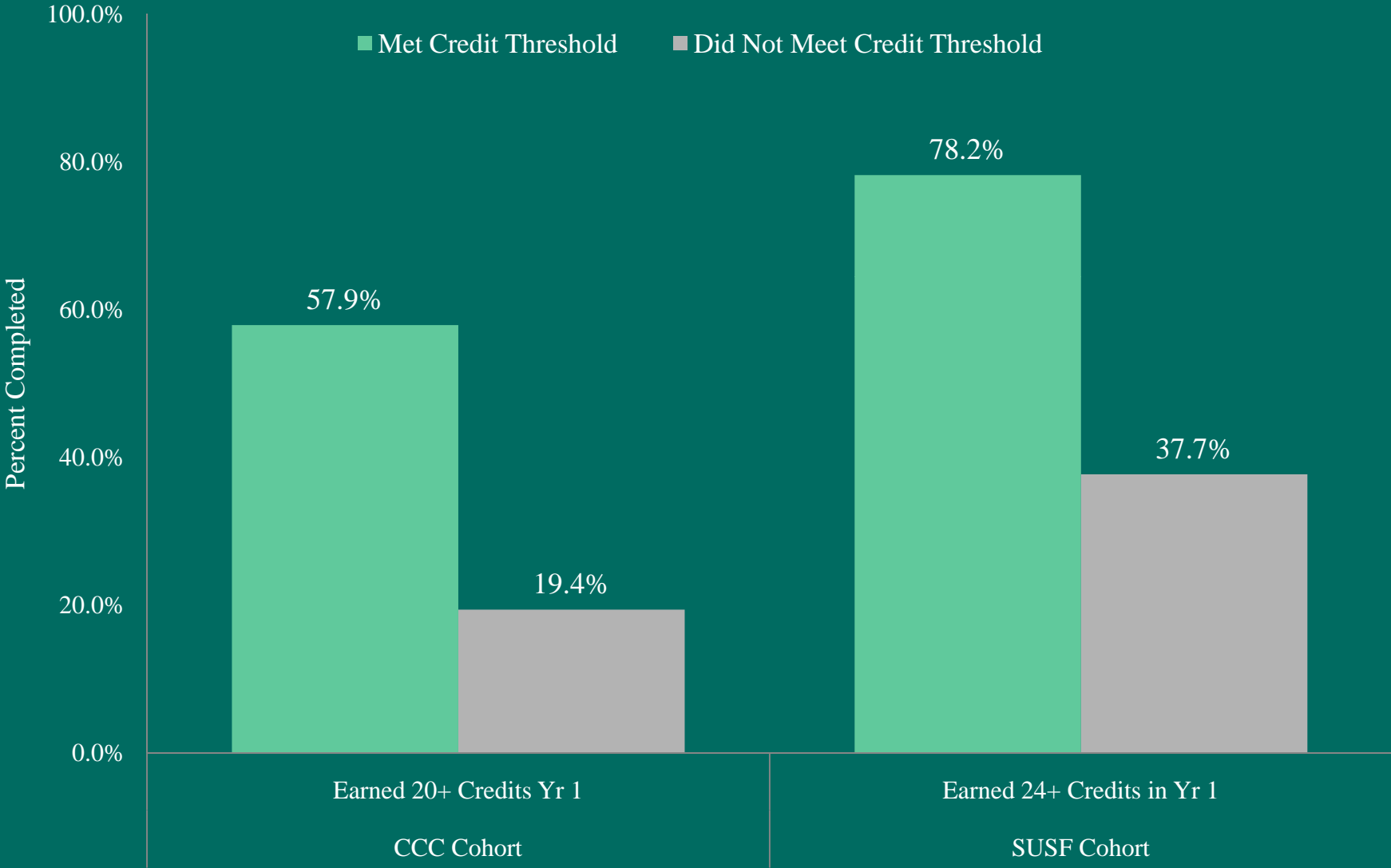
Credit Accumulation: Credit Completion Ratio

# Credit Accumulation:  Attendance Patterns

■ Met Indicator     ■ Did Not Meet Indicator

**Percent Completed**

**CCC Cohort**
- Full Time in First Term: 38.9% / 21.4%
- Enroll Continuously: 36.0% / 28.9%
- Register On Time for 80%+ Courses: 32.4% / 24.3%

**SUSF Cohort**
- Full Time in First Term: 65.6% / 40.6%
- Enroll Continuously: 71.0% / 50.5%
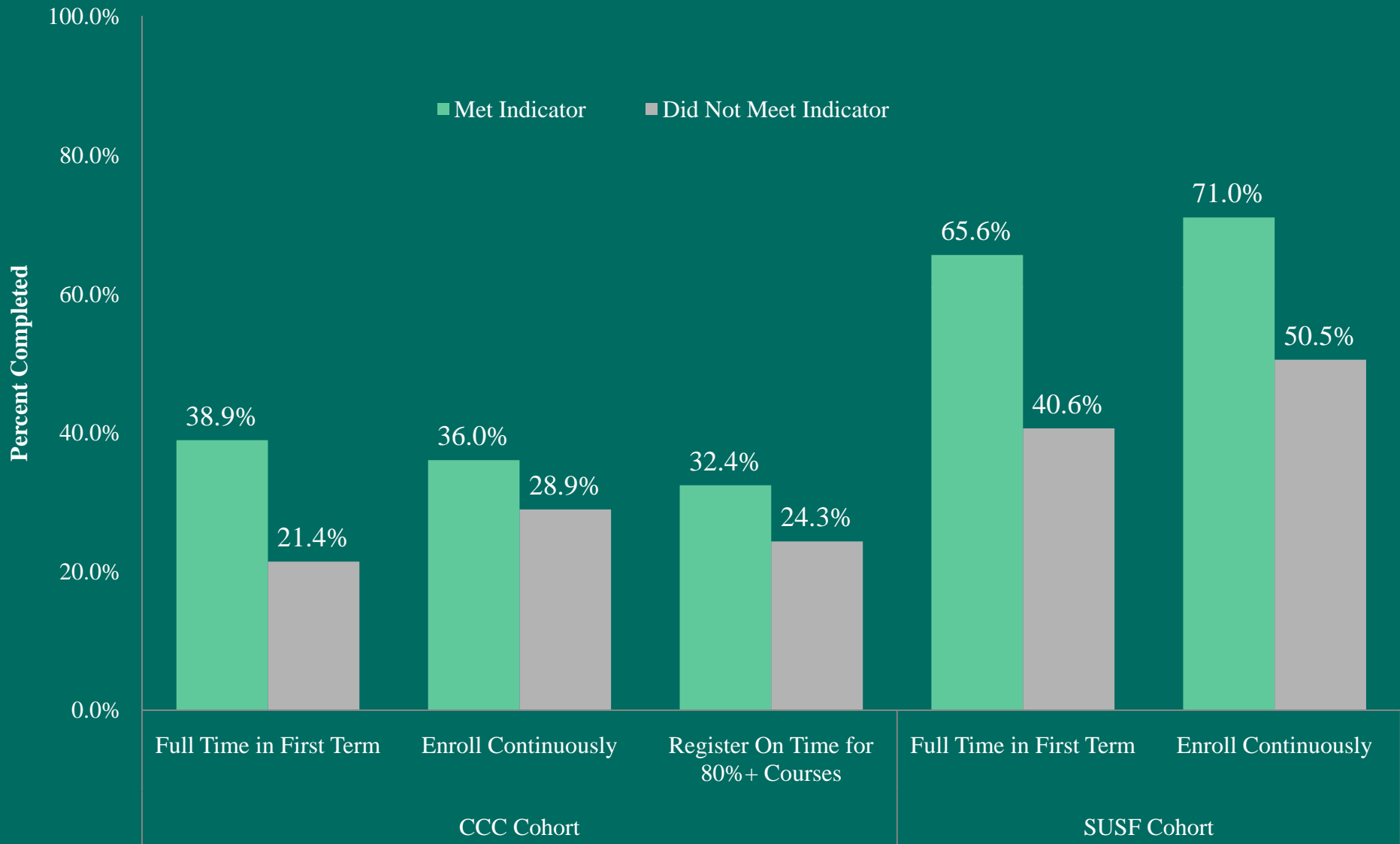
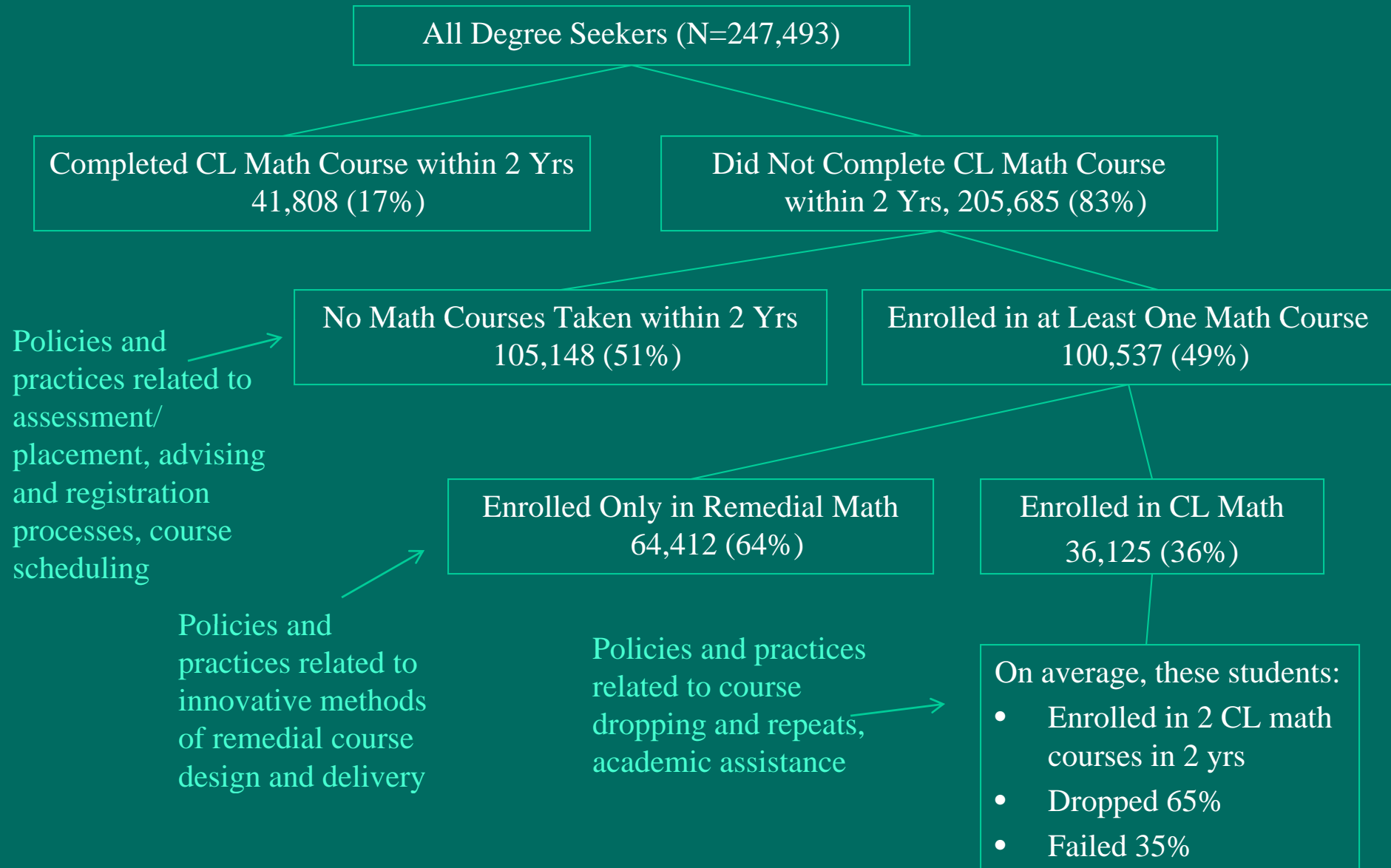# Regression Analysis Confirms Relationships

- In both CCC and SUSF, success indicators predict completion after controlling for:
    - Age, Gender, Race/ethnicity
    - Academic preparation (SUSF)
    - Financial aid receipt (SES, not perfect)
    - Institutional effects
- Some differences across the two systems and groups of students within the systems, but enough significant results to suggest these are important things to measure and track
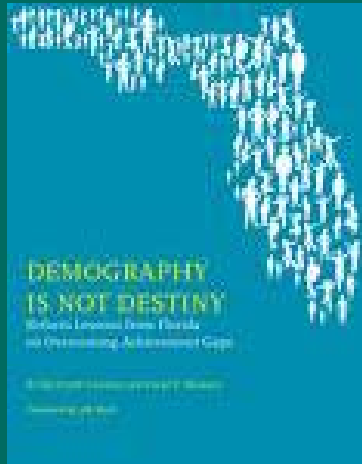
It's not just demographics!

❑ Success indicators were significant predictors after controlling for age, gender, race/ethnicity

❑ Success indicators were significant predictors in models focused only on specific groups like older students, specific racial/ethnic groups

❑ *Systems and institutions can't change demographics, but they can affect these academic and course-taking patterns*

# Further Analysis on Problems Can Point to Solutions

All Degree Seekers (N=247,493)

Completed CL Math Course within 2 Yrs
41,808 (17%)

Did Not Complete CL Math Course
within 2 Yrs, 205,685 (83%)

No Math Courses Taken within 2 Yrs
105,148 (51%)

Enrolled in at Least One Math Course
100,537 (49%)

Policies and practices related to assessment/ placement, advising and registration processes, course scheduling

Enrolled Only in Remedial Math
64,412 (64%)

Enrolled in CL Math
36,125 (36%)

Policies and practices related to innovative methods of remedial course design and delivery

Policies and practices related to course dropping and repeats, academic assistance

On average, these students:
- Enrolled in 2 CL math courses in 2 yrs
- Dropped 65%
- Failed 35%

# Some Examples of Applying Results to Changing Policy and Practice

| Problem Identified | Possible Changes |
|---|---|
| Low percentage of developmental education students completing remediation | • Require early enrollment and completion of remedial coursework<br>• Redesign developmental courses into modules so students only repeat needed sections, and provide shorter brush-up courses for students who test near proficiency levels<br>• Implement learning communities and more innovative practices like intensive summer programs and contextualized remedial instruction |
| Low percentage of students completing math early | • Better align curriculum and assessments with high schools to improve college readiness<br>• Early advising that focuses on importance of taking math early |
| Low percentage of students reach a threshold of credit accumulation in the first year | • Increase financial aid to encourage full-time attendance<br>• Increase use of college success courses, early advising, etc.<br>• Improve financial aid counseling to emphasize benefits of full-time<br>• Charge lower per-credit fees for enrolling in a full-time credit load |
| Relatively low rate of completing courses (i.e., many course drops and failures) | • Allocate portion of funding on course completion in addition to census enrollment<br>• Use early alert systems and improved tutoring services to provide more academic assistance<br>• Limit course drops and repeats or impose extra fees for course withdrawal past a certain date or for repeating a course |
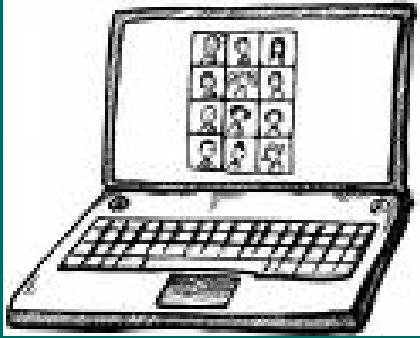
# Ensure Data Systems are Adequate

- ❑ Collect transcript data – information on course-taking
- ❑ Collect data that allows tracking of sub-groups (demographic, but also remedial)
- ❑ Develop data elements to match milestones and indicators (e.g., completion of GE or a transfer curriculum)
- ❑ Data on students' use of campus services and participation in special programs would allow for better evaluation of effectiveness