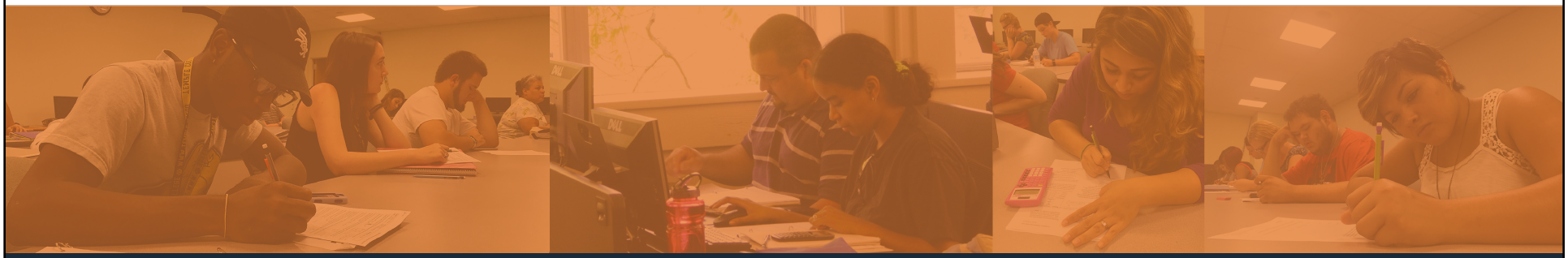
Dana Center
Mathematics
PATHWAYS

The California State University System and The Charles A. Dana Center

Co-requisite Mathematics Summit Campus Teams Webinar

August 3, 2017



Webinar Outcomes

Participants will:

- Understand the mission of the Dana Center and its role in this current work.
- Develop a common language for co-requisite structures.
- Discuss examples of successful existing models through the lens of their institutional context.
- Have the opportunity to surface questions.

About the Dana Center

Our work, based on research and over two decades of experience, focuses on K–16 mathematics and science education with an emphasis on strategies for improving student engagement, motivation, persistence, and achievement, to enable students to achieve upward social mobility.

We develop innovative curricula, tools, protocols, and instructional supports and deliver powerful instructional and leadership development.

The University of Texas at Austin
Charles A. Dana Center

2016

Introducing the Dana Center

Philip Uri Treisman, Ph.D.,
Executive Director of the Charles A. Dana Center
University of Texas at Austin

University Distinguished Teaching Professor,
Professor of Mathematics, Professor of Public Affairs

Introduction to the Dana Center

Paula Talley
Implementation Lead

Frank Savina
Course Programs

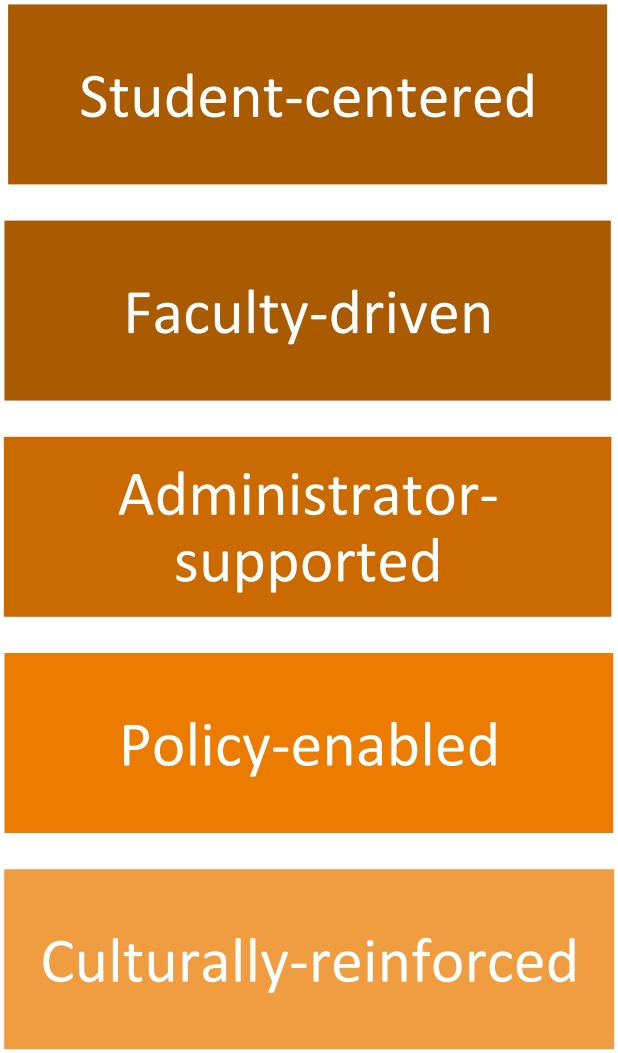
Nancy Stano
Strategic Learning &
Development Specialist

Connie Richardson
Manager
Course Programs

DCMP Vision

The DCMP seeks to ensure that **ALL** students in higher education will be:

- **Prepared** to use mathematical and quantitative reasoning skills in their careers and personal lives,
- **Enabled** to make timely progress towards completion of a certificate or degree, and
- **Supported** and **Empowered** as mathematical learners.


Student-centered
Faculty-driven
Administrator-supported
Policy-enabled
Culturally-reinforced

What does “co-requisite” mean to you?

Co-requisite as an umbrella term

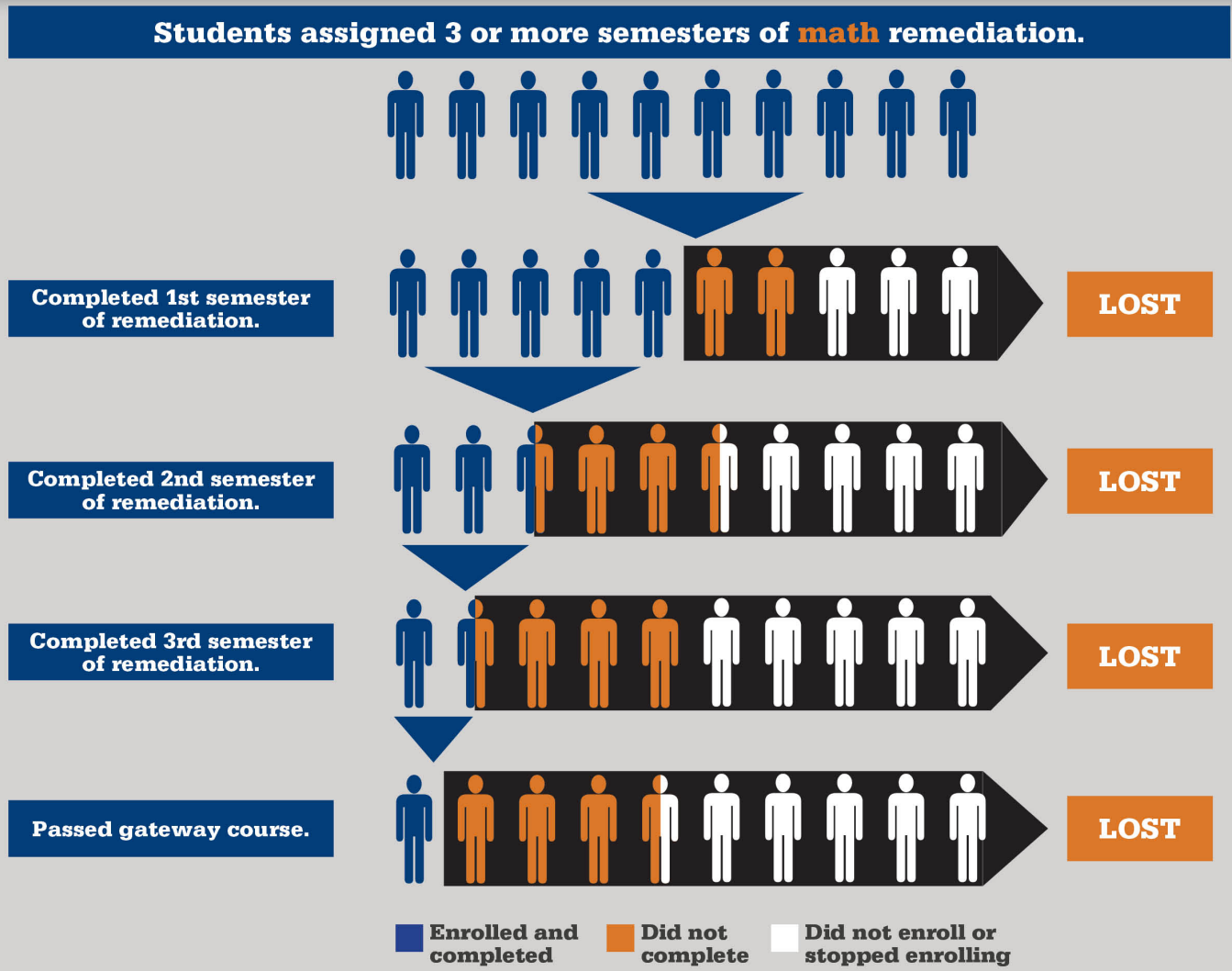
Executive Order 1110, Section V.B

Supportive course models may include, among others, co-requisite approaches, supplemental instruction, or stretch formats that extend a course beyond one academic term.

Introduction to the Dana Center's Role

- Provide data from successful programs.
- Support planning by facilitating structured discussions among campus teams.
- Foster cross-institutional learning and collaboration.
- Surface questions and concerns.

Remediation: The effect of attrition.

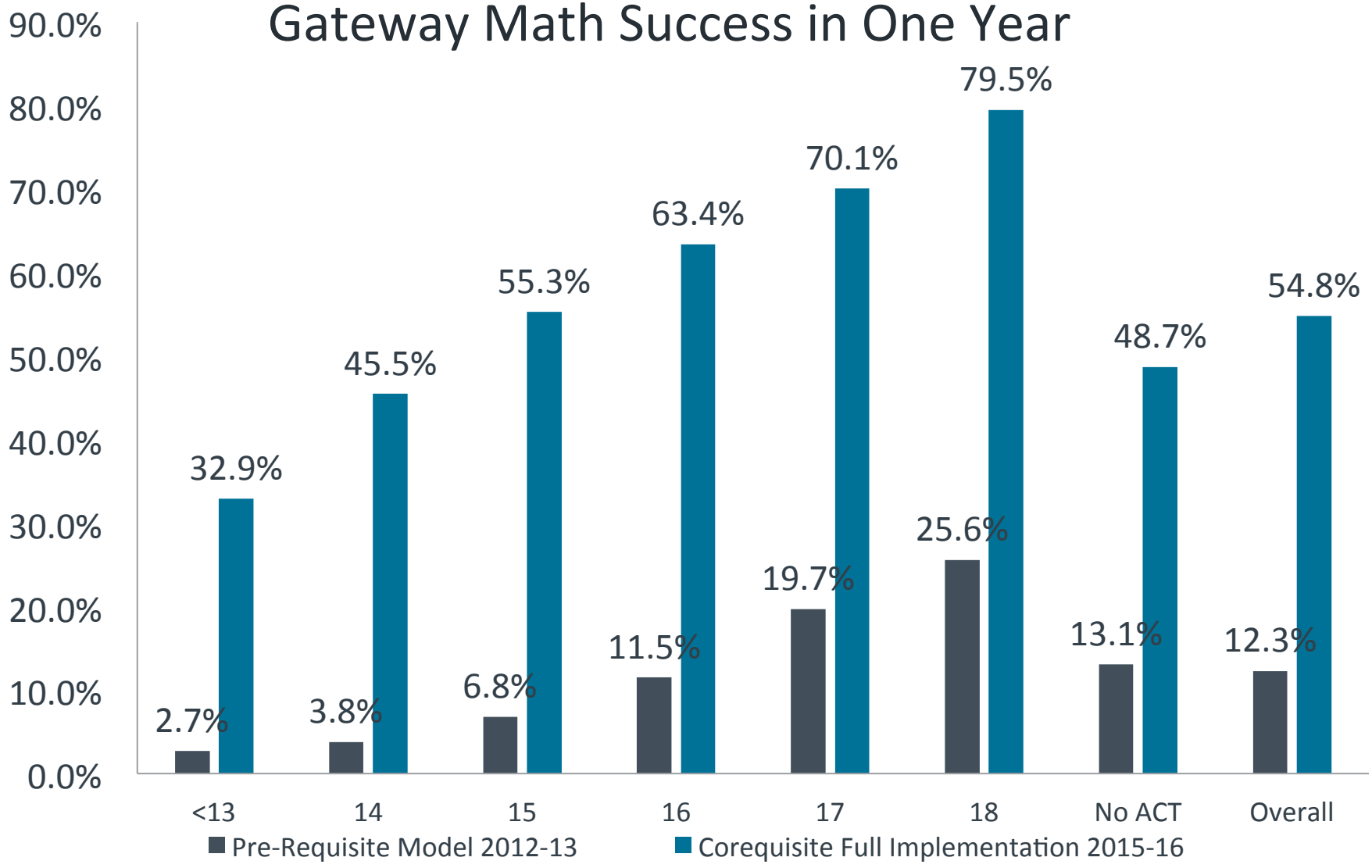


KNOW THIS The remediation system is broken. More students quit than fail.

Source: Hughes, K., Edgecombe, N., & Snell, M. (2011). "Developmental Education: Why and How We Must Reform It." New York: Columbia University, Teachers College, Community College Research Center. Presentation given at the 2011 League for Innovation in the Community College Annual Conference.

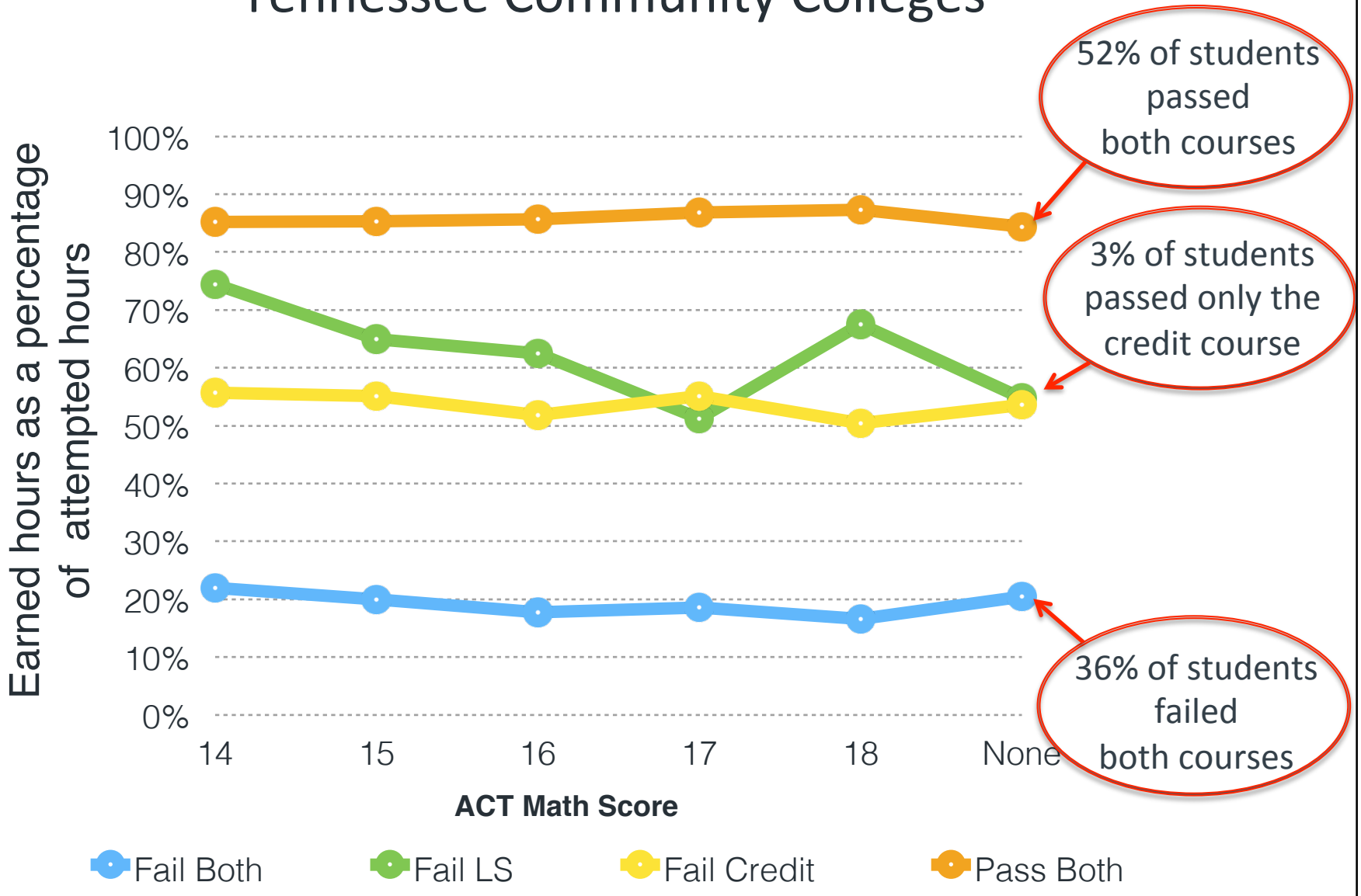
Do Co-requisites Work for All Students?

Tennessee Community Colleges
Gateway Math Success in One Year



Tennessee Board of Regents Brief #3: *Co-requisite Remediation Full Implementation 2015-16*

Tennessee Community Colleges



Adapted from TBR Brief #3: *Co-requisite Remediation Full Implementation 2015-16*

The Bottom Line

- Students who pass the college-level course and the support course tend to pass almost all of their courses – *regardless of ACT score.*
- Students who fail the college-level course and the support course tend to fail almost all of their courses – *regardless of ACT score.*
- CCA calls this a challenge of overall "College Readiness," rather than a lack of academic readiness.

Adapted from Complete College America 2017

Questions?

Comprehensive Redesign

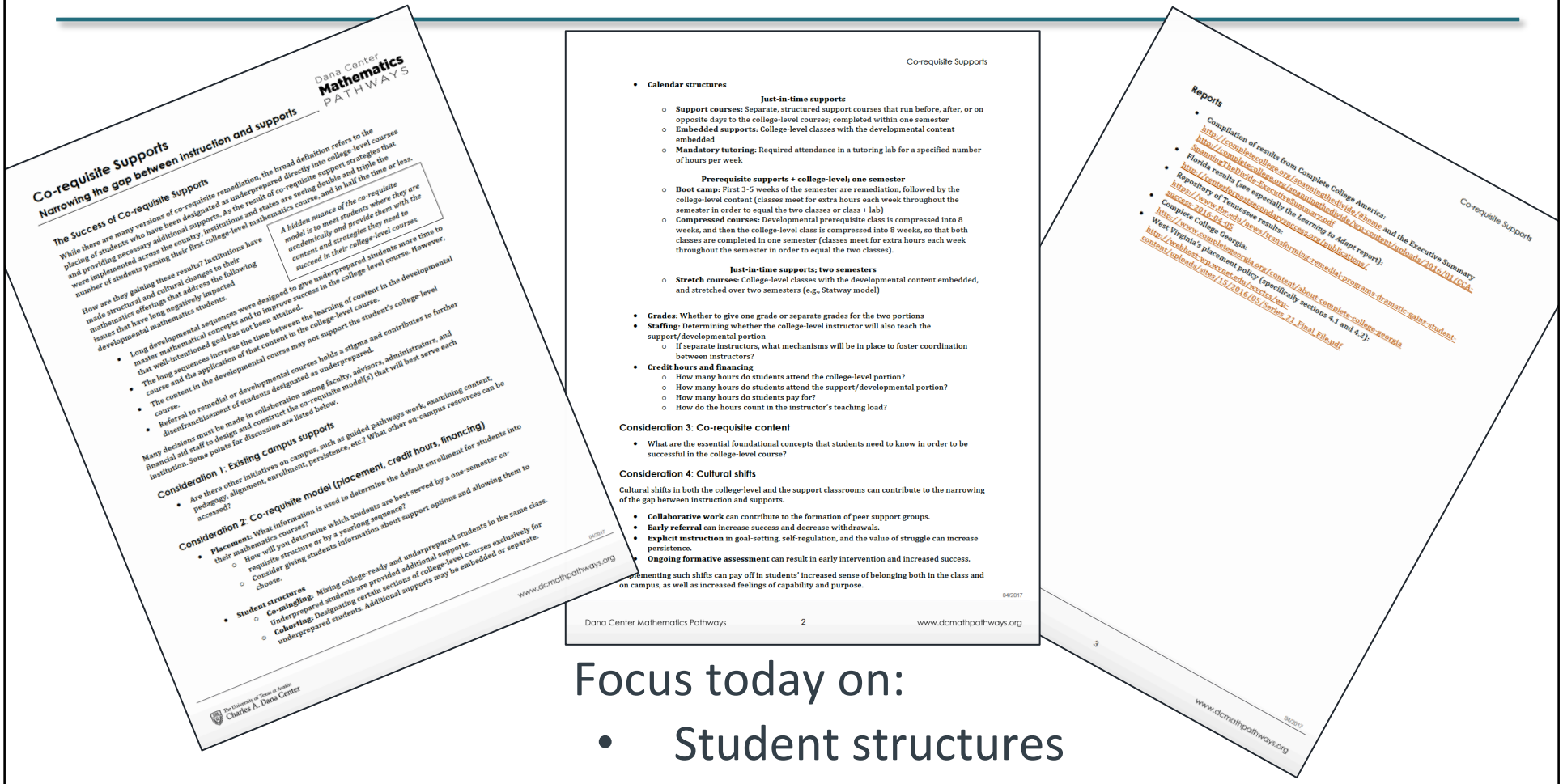
Comprehensive Redesign

Core elements:

- Math pathways
- Meta-majors with default or recommended math requirements
- Co-requisite supports for underprepared students
- Multiple measures placement
- Advising

Co-requisite Implementation Considerations

Co-requisite Supports



Co-requisite Supports

- **Calendar structures**

Just-in-time supports

  - **Support courses:** Separate, structured support courses that run before, after, or on opposite days to the college-level courses; completed within one semester
  - **Embedded supports:** College-level classes with the developmental content embedded
  - **Mandatory tutoring:** Required attendance in a tutoring lab for a specified number of hours per week

Prerequisite supports + college-level; one semester

  - **Boot camp:** First 3-5 weeks of the semester are remediation, followed by the college-level content (classes meet for extra hours each week throughout the semester in order to equal the two classes or class + lab)
  - **Compressed courses:** Developmental prerequisite class is compressed into 8 weeks, and then the college-level class is compressed into 8 weeks, so that both classes are completed in one semester (classes meet for extra hours each week throughout the semester in order to equal the two classes).

Just-in-time supports; two semesters

  - **Stretch courses:** College-level classes with the developmental content embedded, and stretched over two semesters (e.g., Statway model)

- **Grades:** Whether to give one grade or separate grades for the two portions
- **Staffing:** Determining whether the college-level instructor will also teach the support/developmental portion
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- **Credit hours and financing**
  - How many hours do students attend the college-level portion?
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  - How many hours do students pay for?
  - How do the hours count in the instructor's teaching load?

Consideration 3: Co-requisite content

- What are the essential foundational concepts that students need to know in order to be successful in the college-level course?

Consideration 4: Cultural shifts

Cultural shifts in both the college-level and the support classrooms can contribute to the narrowing of the gap between instruction and supports.

- **Collaborative work** can contribute to the formation of peer support groups.
- **Early referral** can increase success and decrease withdrawals.
- **Explicit instruction** in goal-setting, self-regulation, and the value of struggle can increase persistence.
- **Ongoing formative assessment** can result in early intervention and increased success.

Implementing such shifts can pay off in students' increased sense of belonging both in the class and on campus, as well as increased feelings of capability and purpose.

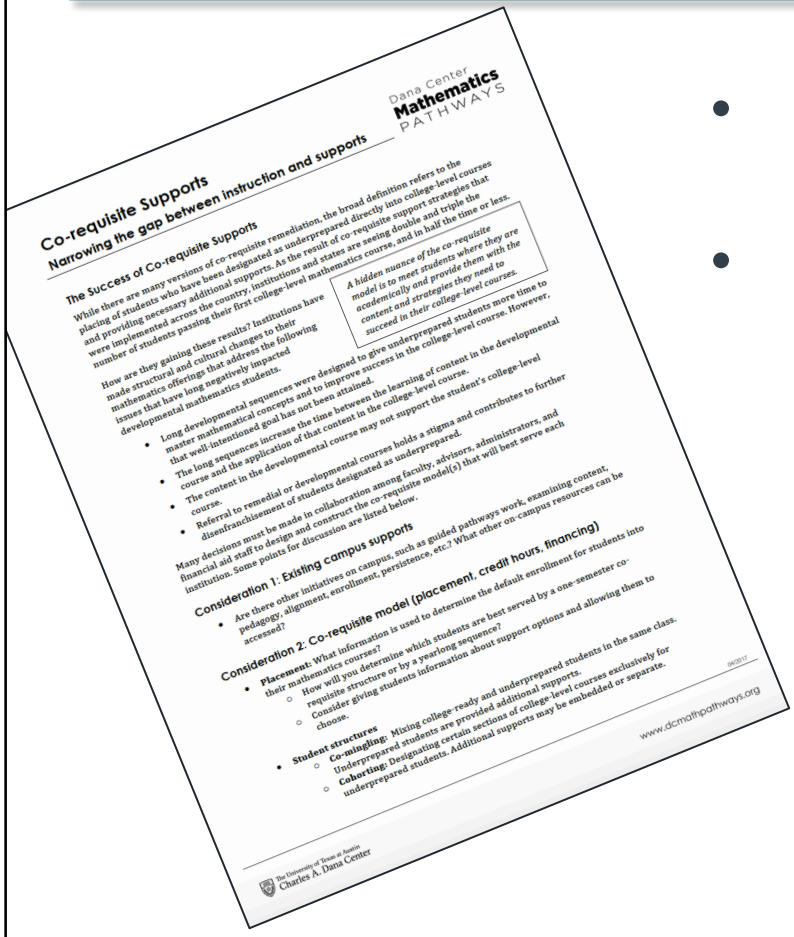
04/2017

Dana Center Mathematics Pathways 2 www.dcmathpathways.org

Focus today on:

- Student structures
- Calendar structures
- Staffing

Student Structures



Dana Center Mathematics PATHWAYS

Co-requisite Supports
Narrowing the gap between instruction and supports

The Success of Co-requisite Supports

While there are many versions of co-requisite remediation, the broad definition refers to the placing of students who have been designated as underprepared directly into college-level courses and providing necessary additional supports. As the result of co-requisite support strategies that were implemented across the country, institutions and states are seeing double and triple the number of students passing their first college-level mathematics course, and in half the time or less.

A hidden nuance of the co-requisite model is to meet students where they are academically and provide them with the content and strategies they need to succeed in their college-level courses.

How are they gaining these results? Institutions have made structural and cultural changes to their mathematics offerings that address the following issues that have long negatively impacted developmental mathematics students.

- Long developmental sequences were designed to give underprepared students more time to master mathematical concepts and to improve success in the college-level course. However, that well-intentioned goal has not been attained.
- The long sequences increase the time between the learning of content in the developmental course and the application of that content in the college-level course.
- The content in the developmental course may not support the student's college-level course.
- Referral to remedial or developmental courses holds a stigma and contributes to further disenfranchisement of students designated as underprepared.

Many decisions must be made in collaboration among faculty, advisors, administrators, and financial aid staff to design and construct the co-requisite model(s) that will best serve each institution. Some points for discussion are listed below.

Consideration 1: Existing campus supports

- Are there other initiatives on campus, such as guided pathways work, examining content, pedagogy, alignment, enrollment, persistence, etc.? What other on-campus resources can be accessed?

Consideration 2: Co-requisite model (placement, credit hours, financing)

- **Placement:** What information is used to determine the default enrollment for students into their mathematics courses?
  - How will you determine which students are best served by a one-semester co-requisite structure or by a yearlong sequence?
  - Consider giving students information about support options and allowing them to choose.
- **Student structures**
  - **Co-mingling:** Mixing college-ready and underprepared students in the same class. Underprepared students are provided additional supports.
  - **Cohorting:** Designating certain sections of college-level courses exclusively for underprepared students. Additional supports may be embedded or separate.

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The University of Texas at Austin Charles A. Dana Center

- Co-mingling
- Cohorting

Student structures

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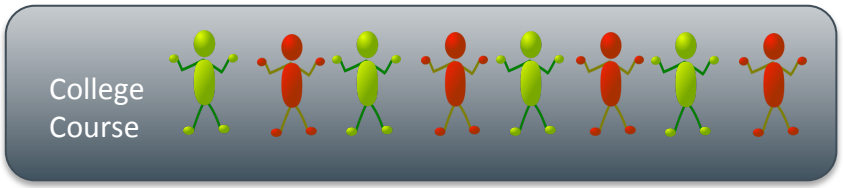

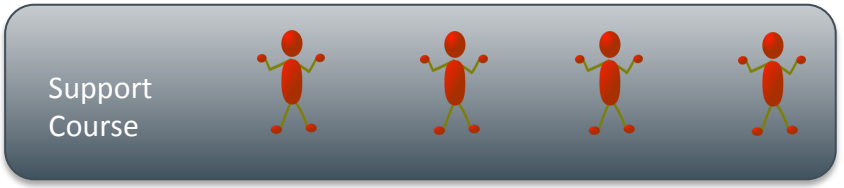

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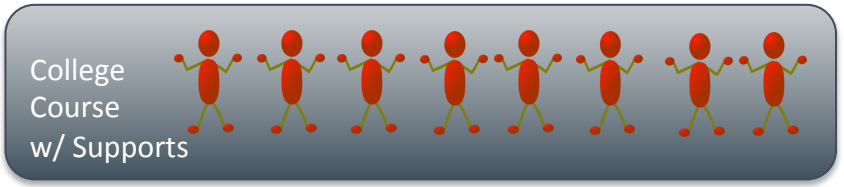
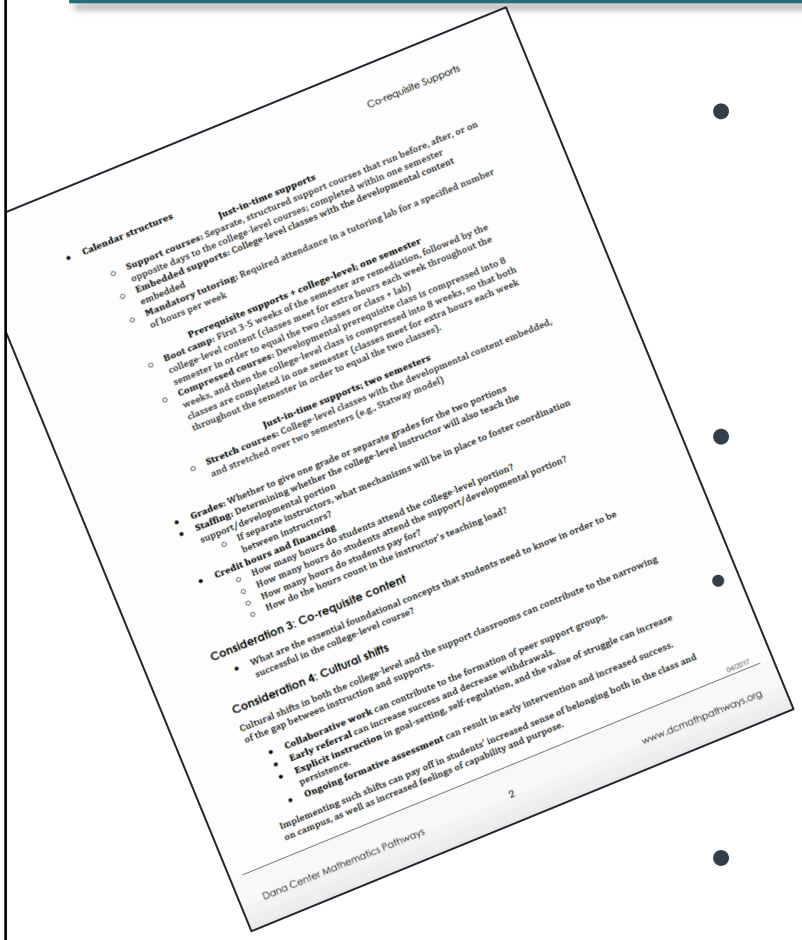


Discussion and Questions

Calendar Structures



Co-requisite Supports

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Just-in-time supports

Prerequisite supports + college-level; one semester

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Just-in-time supports; two semesters

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Dana Center Mathematics Pathways

- Just-in-time supports:
  Support courses
  Embedded supports
  Mandatory tutoring
- Prerequisite supports + college-level; one semester:
- Boot camp
  Compressed courses
- Just-in time supports; two semesters
  Stretch courses

Calendar Structures

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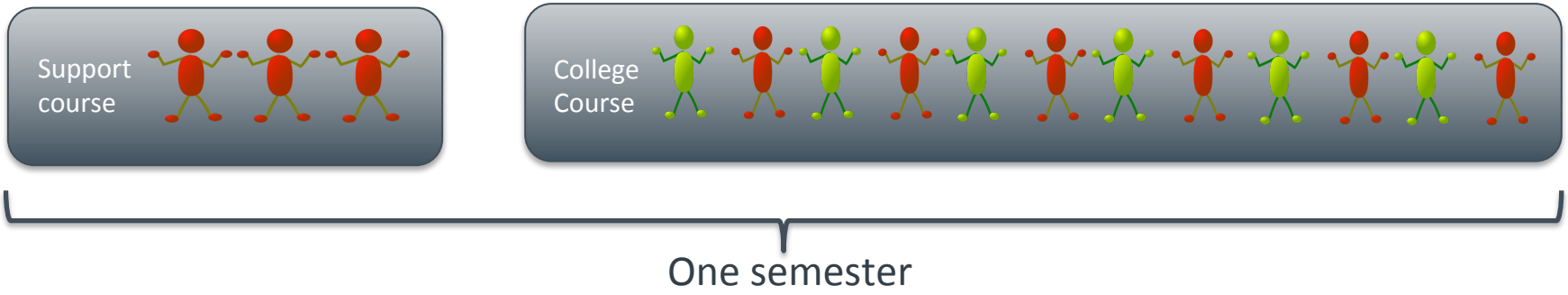
Calendar structures

Boot Camp:

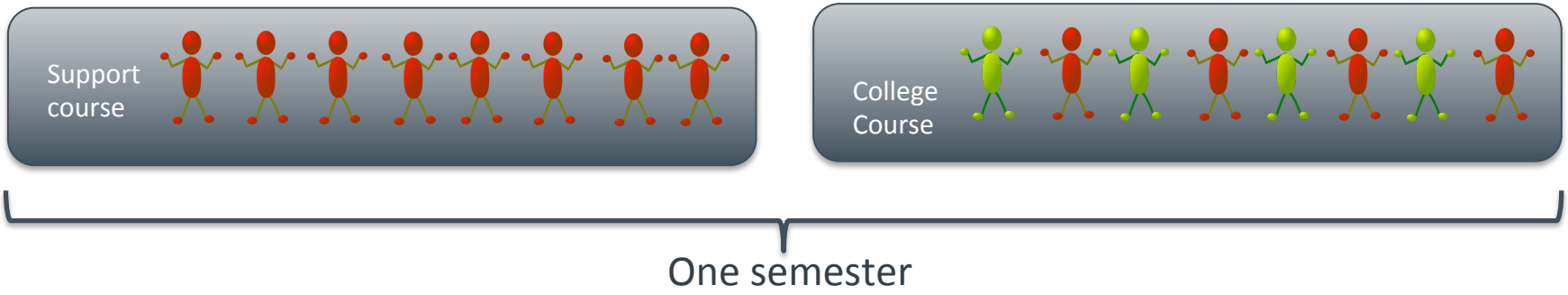
~4-week support course (6 hours),
followed by ~12-week college course (4-5 hours).



Calendar structures

Compressed:

8-week support course (6 hours), followed by an 8-week college course (6 hours).



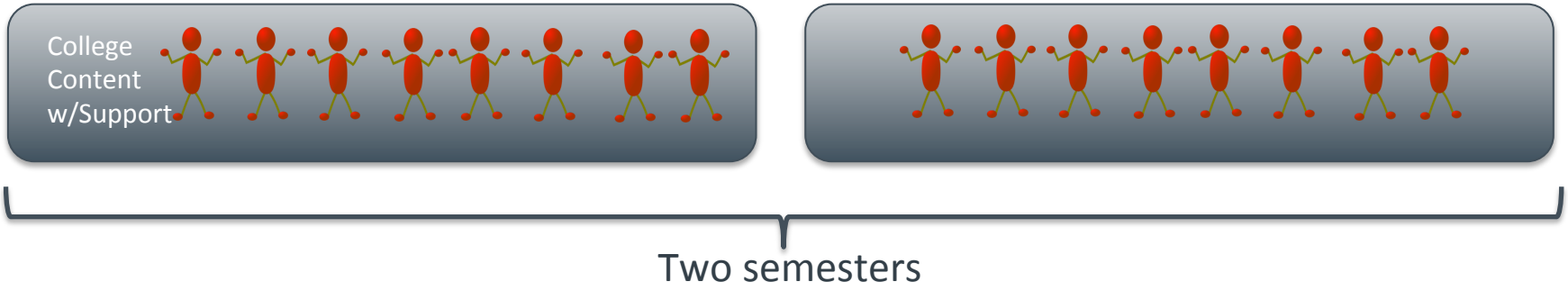
Calendar structures

- Just-in-time supports; two semesters:
  - **Stretch courses:** College-level classes with the developmental content embedded, and stretched over two semesters (e.g. Statway model)

Structure definitions

Stretch:

College content runs over two semesters with just-in-time embedded supports (3-4 hours per week).



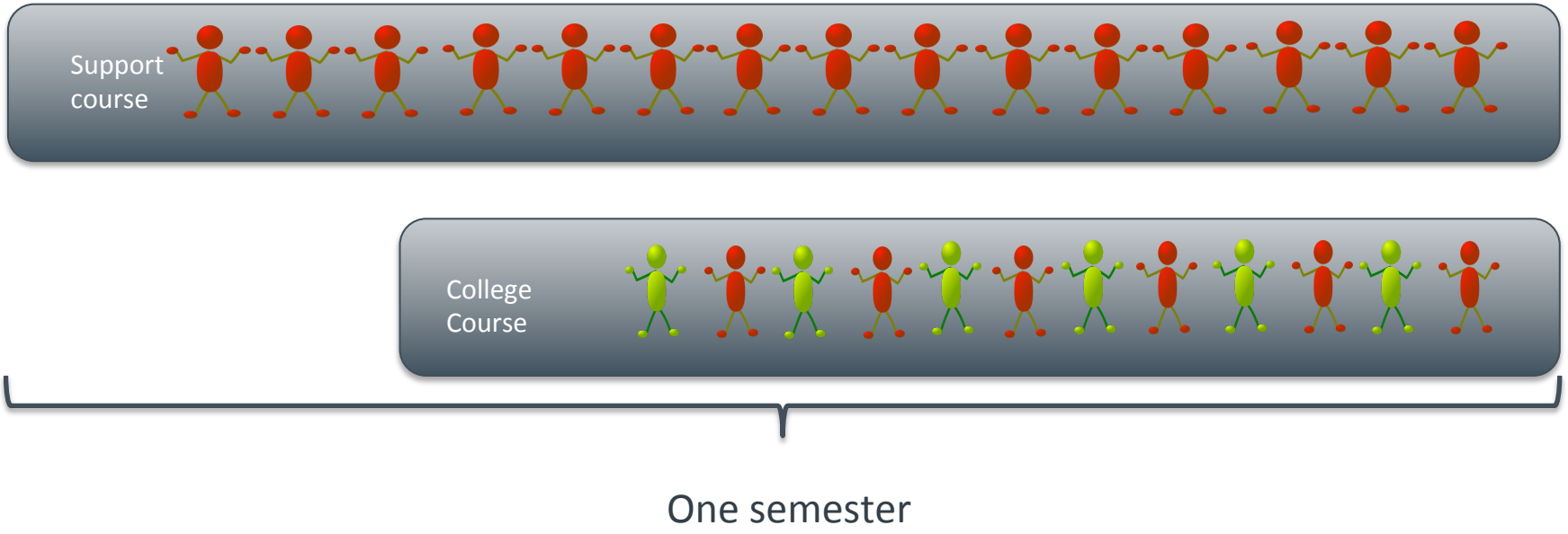
Discussion and Questions

Structure definitions

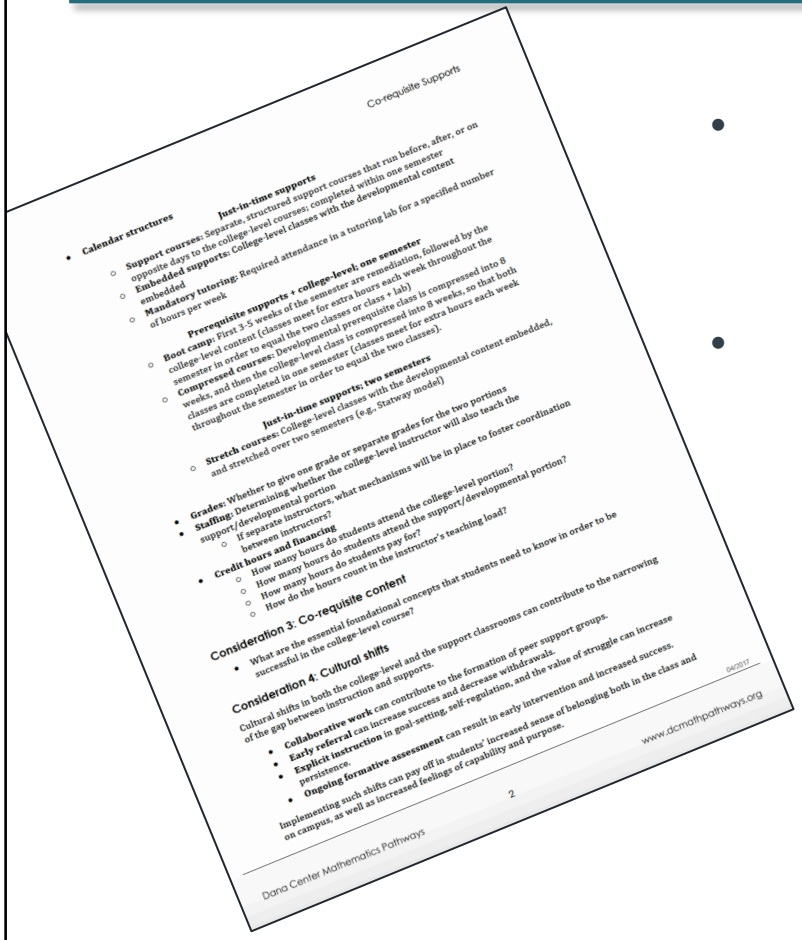
Hybrid Boot Camp/Support Course

16-week support course (3 hours),

Late start 12-week college course (4 hours).



Staffing



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- Determining whether the college-level instructor will also teach the support/developmental portion
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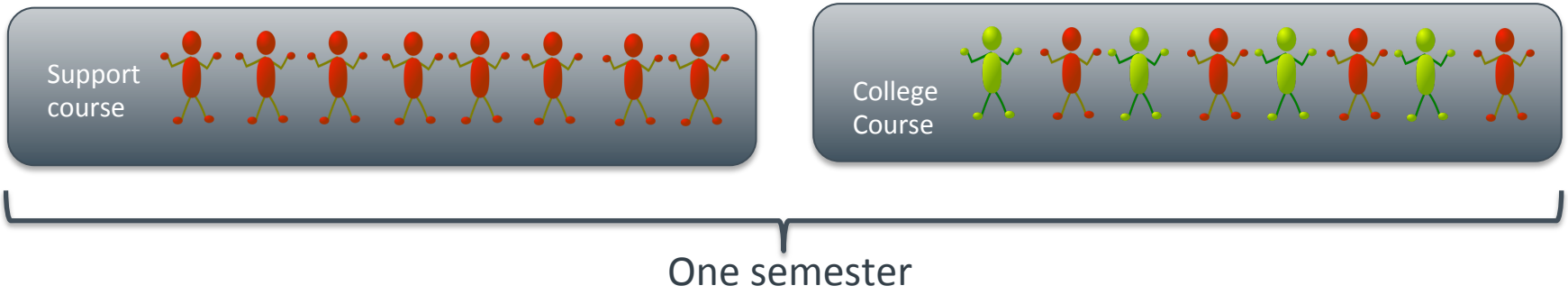
Discussion and Questions

What counts and what doesn't count?

Structure definitions

Compressed:

8-week support course (6 hours), followed by an 8-week college course (6 hours).



What counts and what doesn't count?

http://completecollege.org/category/blog/

- June 2017
  - Chapter 1: What is a Corequisite Course
  - Chapter 2: Models That Don't Pass the Coreq Test

Discussion and Questions

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