

Don't Put the Cart Before the Horse: A Decomposition Study to Identify Target Student Populations for High Impact Practices





Outcomes

- 1.** Context: Changing campus
- 2.** Changing the nature of inquiry
What we really mean by decomposition
- 3.** and what we did
- 4.** Examples academic probation and CNRS
- 5.** Next steps for HSU



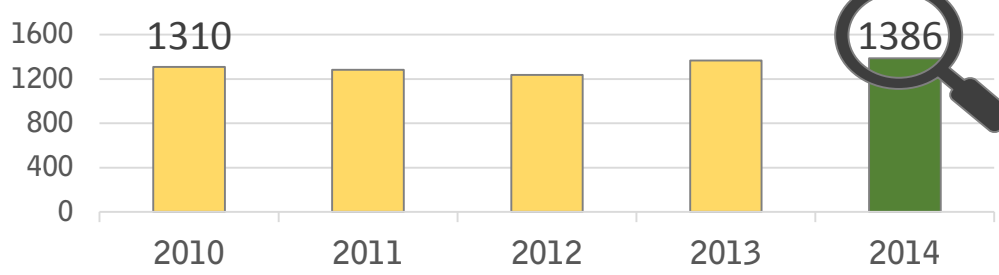
Part I

UNSTOPPABLE FORCE VS THE IMMOVABLE OBJECT



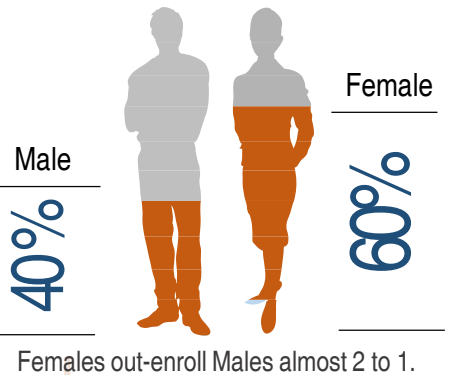
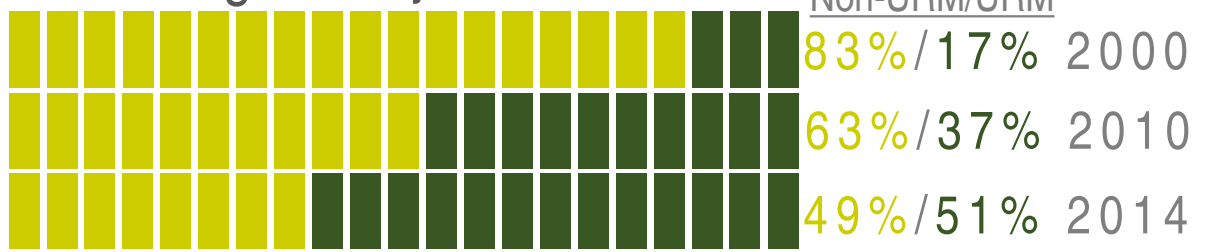
Changing First-Time Undergraduates at Humboldt State University

Increasing Size



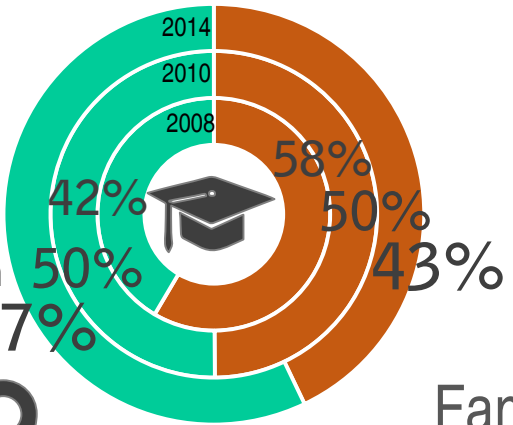
In 2014, HSU enrolled its largest and most diverse class.

Increasing Diversity



First In Family

In 2014, first-generation students make up over half of the new freshmen class.



Student Achievement

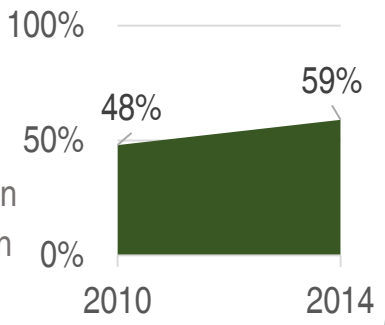
In 2014, the average HSGPA of the incoming class was 3.15, a .05 point increase since 2012.

Percentile Rank

	25th %	50th %	75th %
HS GPA	2.93	3.15	3.44
SAT	880	990	1100

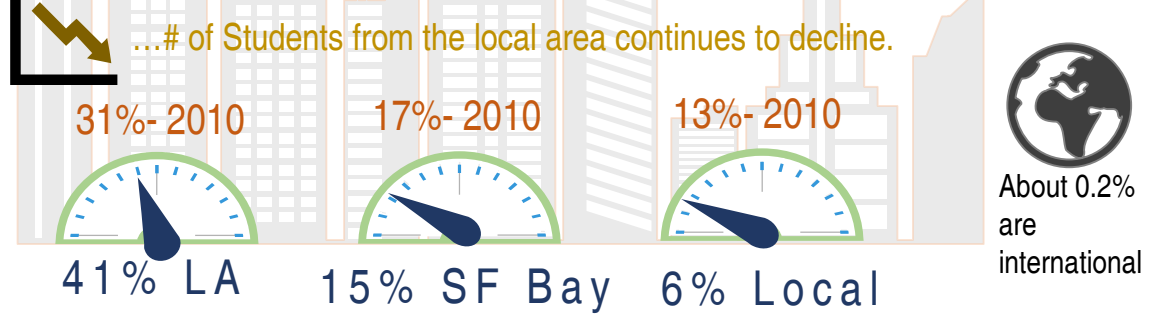
Family Income

Since 2010, HSU has seen a 23% percent increase in low-income students.

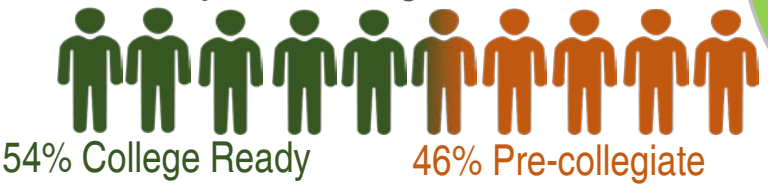


Location, Location, Location

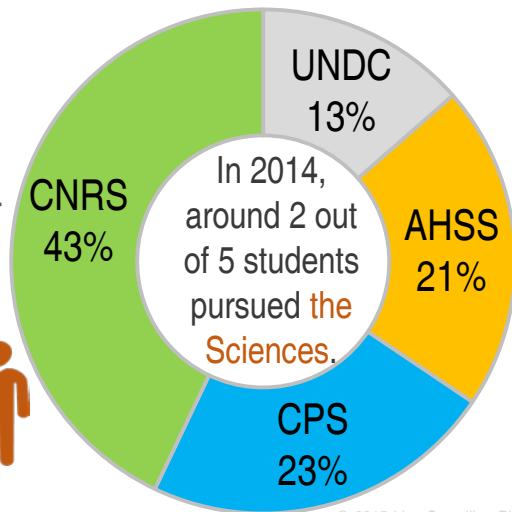
of Students from Southern California and surrounding areas continues to increase while...
 ...# of Students from the local area continues to decline.



Ready for College Level Work?

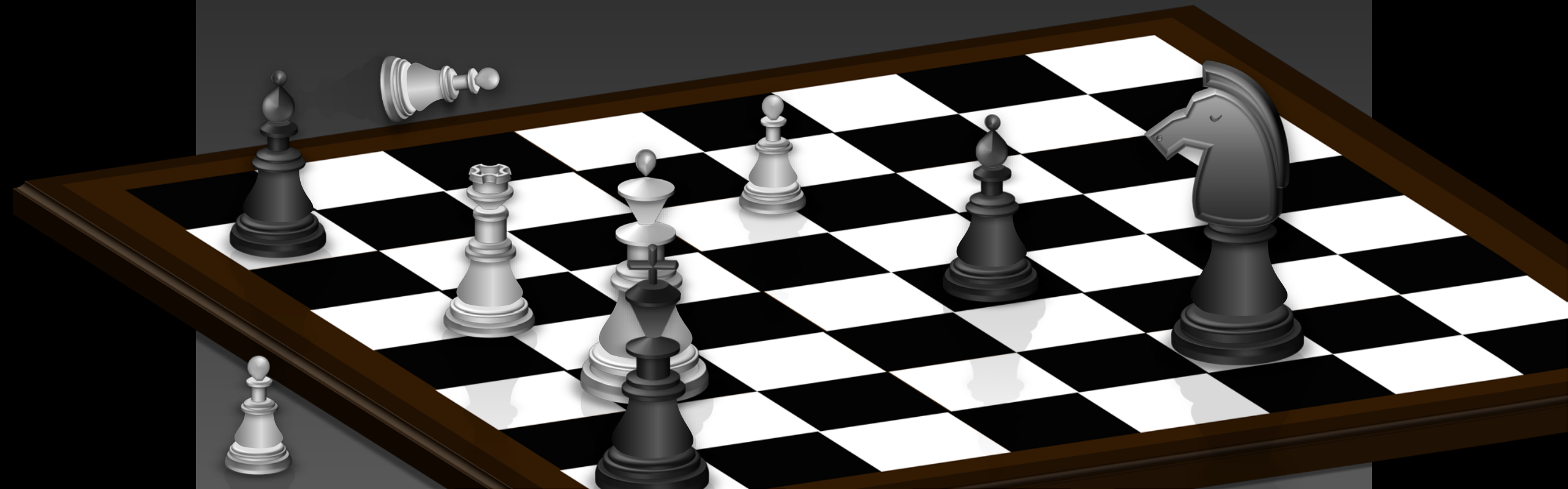


Majors



Current Structure

- All or nothing approach
 - “blunt instrument”
 - Give it to everyone and hope someone benefits from it.
- Disconnect between students’ needs and intervention(s).
- Is it the right one?
- Is it the right time?
- Does more = better?
- What do we stop?



Defining Student Success

“Jumping the Shark”

The beginning

Student matriculates and is exposed to the academic and social systems of higher education...

The end

Student overcomes challenges, earns academic credit and hopefully, learns something..



Challenges

Appreciative Inquiry

“Every organization has something that works right—things that give life when its most alive, effective, successful, and connected in healthy ways to its stakeholders and communities. AI begins by identifying what is positive and connecting to it in ways that heighten energy and vision for change.”

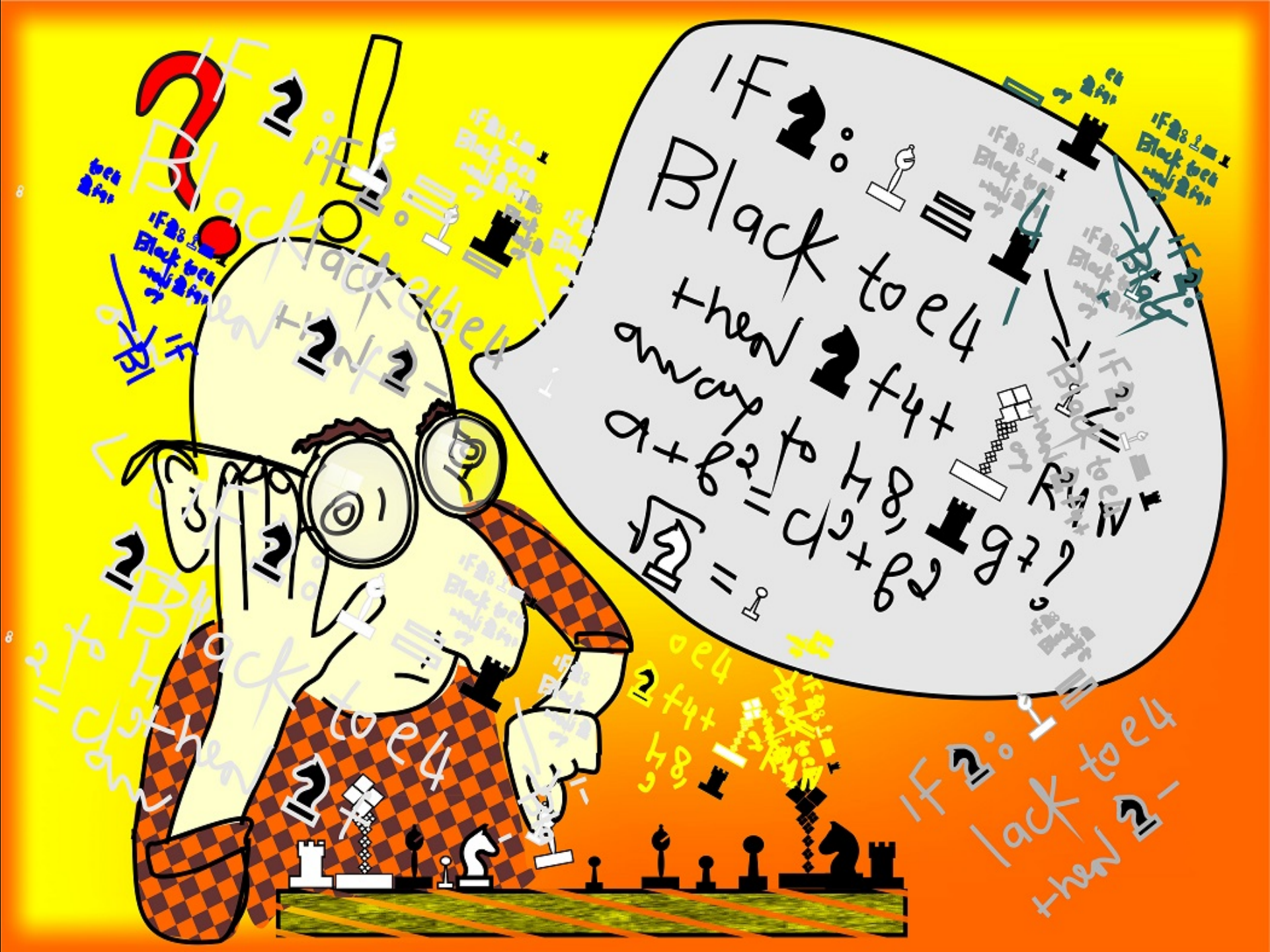
Target Structure




The “right intervention, at the right time, for the right student.”

INTERVENTION

TIME

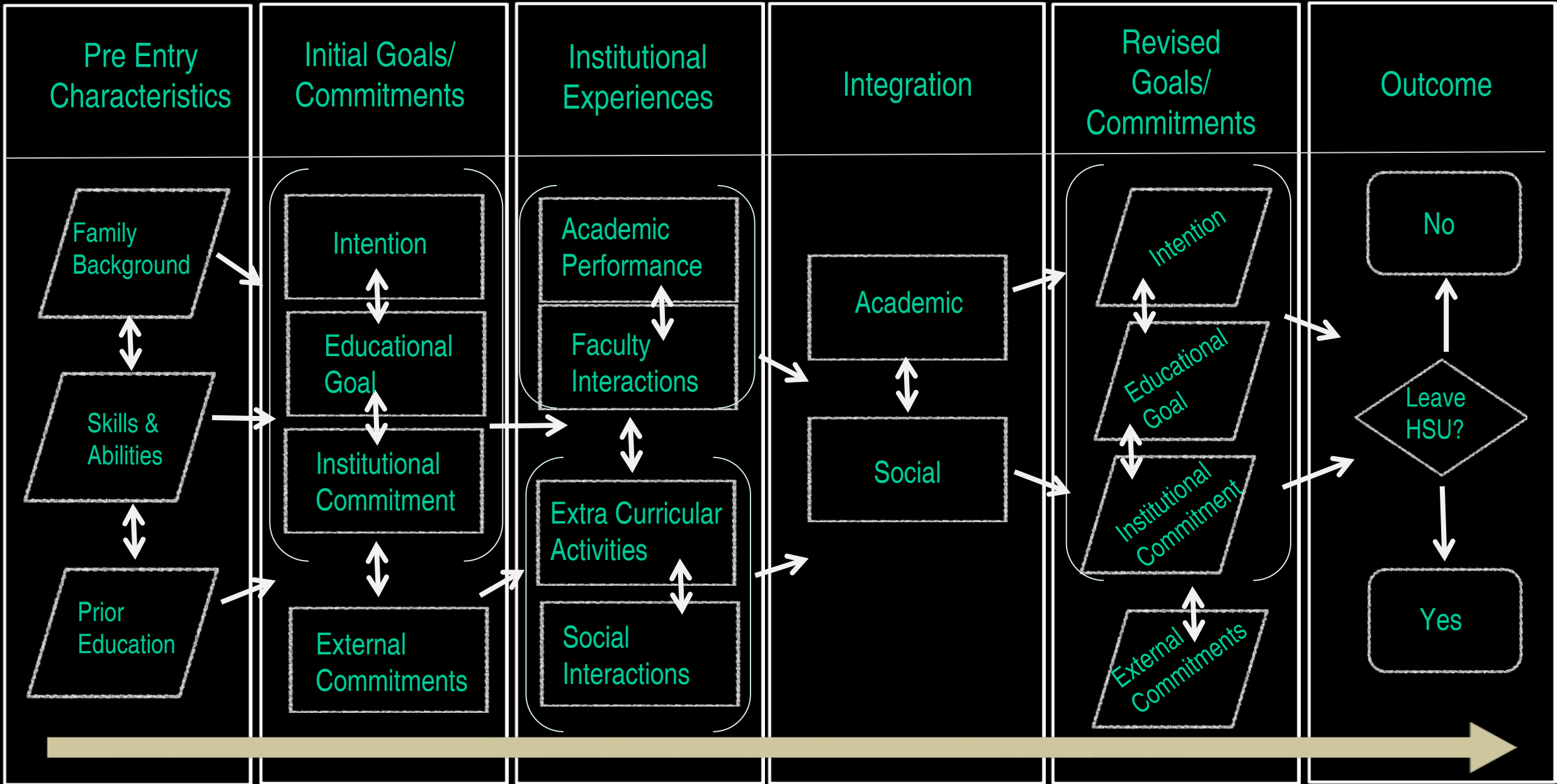




IF :
Black to e4
then  f4+
a+b2 to h8,
 = c2+b2 g7?

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Factors Associated with Student Success

1 Commitment to the Institution

2 Communication Skills

3 Analytical Skills

4 Self-Discipline

5 Time Management 

6 Financial Means

7 Basic Academic Behaviors 

8 Advanced Academic Behaviors 

9 Academic Self Efficacy 

10 Peer Connections

11 Homesickness- Separation

12 Homesickness- Distressed

13 Academic Integration

14 Social Integration

15 Satisfaction w Institution

16 On Campus - Social

17 On Campus- Environment

18 On Campus- Roommate

19 Off Campus- Environment

20 Test Anxiety

Student Engagement/ High Impact Practices/Interventions

1 Learning Communities

10 Peer Mentoring

2 Undergraduate Research

11 Active and Collaborative Learning

3 Study Abroad

12 Level of Academic Challenge

4 Senior Capstone/ Culminating Experience

13 Intrusive Advising

5 First-Year Experience

14 Student/Faculty Interactions

6 Internships

15 Supportive Campus Environment

7 Student Employment

16 Higher Order Learning

8 Faculty In Residence

17 Discussion with Diverse Others

9 Centers for Academic Excellence

18 Effective Teaching Practices

Part II

DECOMPOSING A 'DECOMPOSITION STUDY'



Tools

Propensity Score



Matching

Testing differences.

01

Decision Trees



Examining patterns.

02

GLM



Testing relationships.

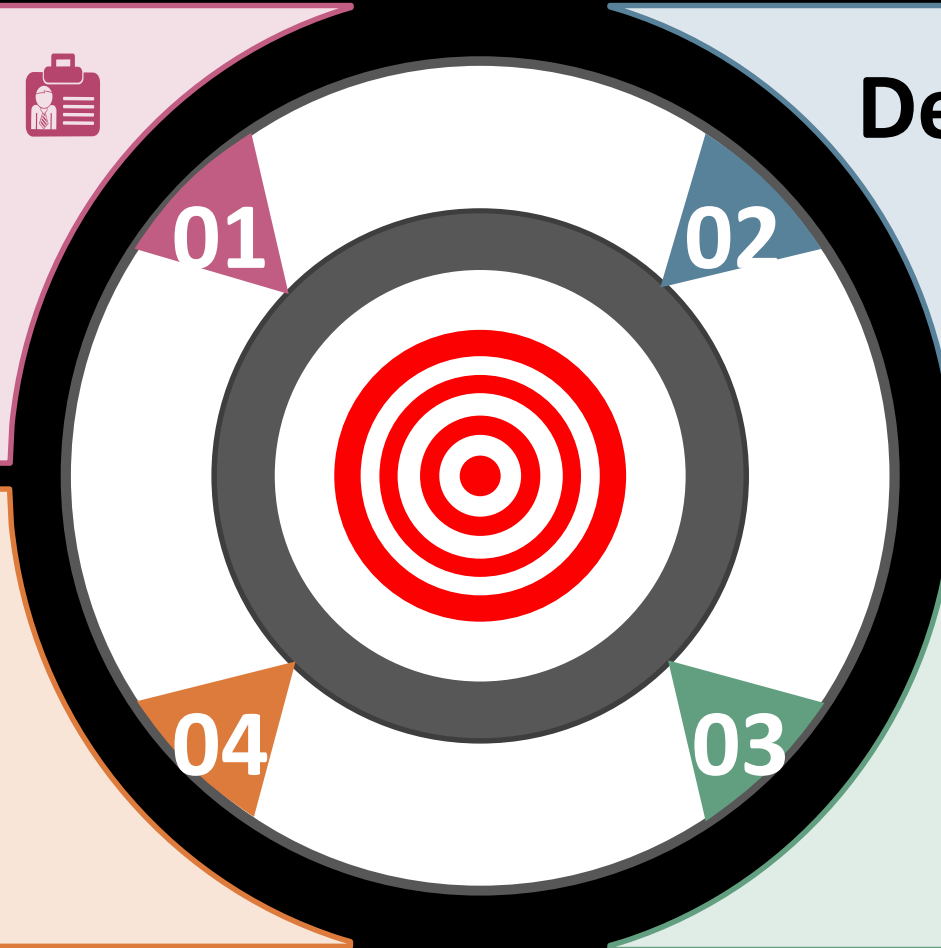
04

SEM



Testing hypotheses.

03



Purpose

Propensity Score



Matching

What impact and to what degree?

01

02

04

03

GLM



Strategic investment opportunities.

Decision Trees



Identify groups to apply interventions.



SEM



Identify depth & degree of interventions.

Part II

EXAMPLE OF DECISION TREE- ACADEMIC PROBATION

Sample For Retention (N = 6,584) 2009-2013

Descriptive Characteristics

Gender



Females were represented in the majority of the sample.

College Readiness



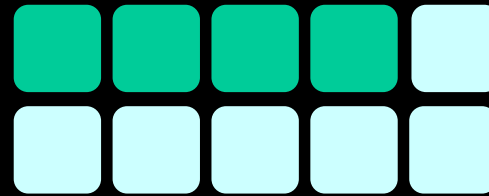
53%



Over half were college ready at the time of first enrollment.

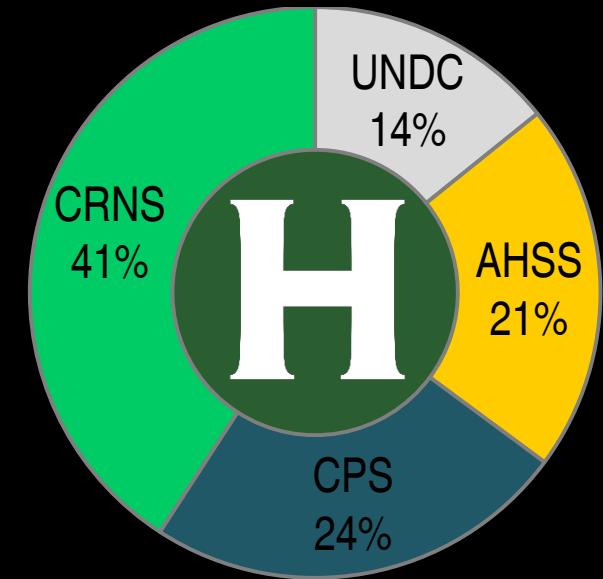
URM/Non URM

40%

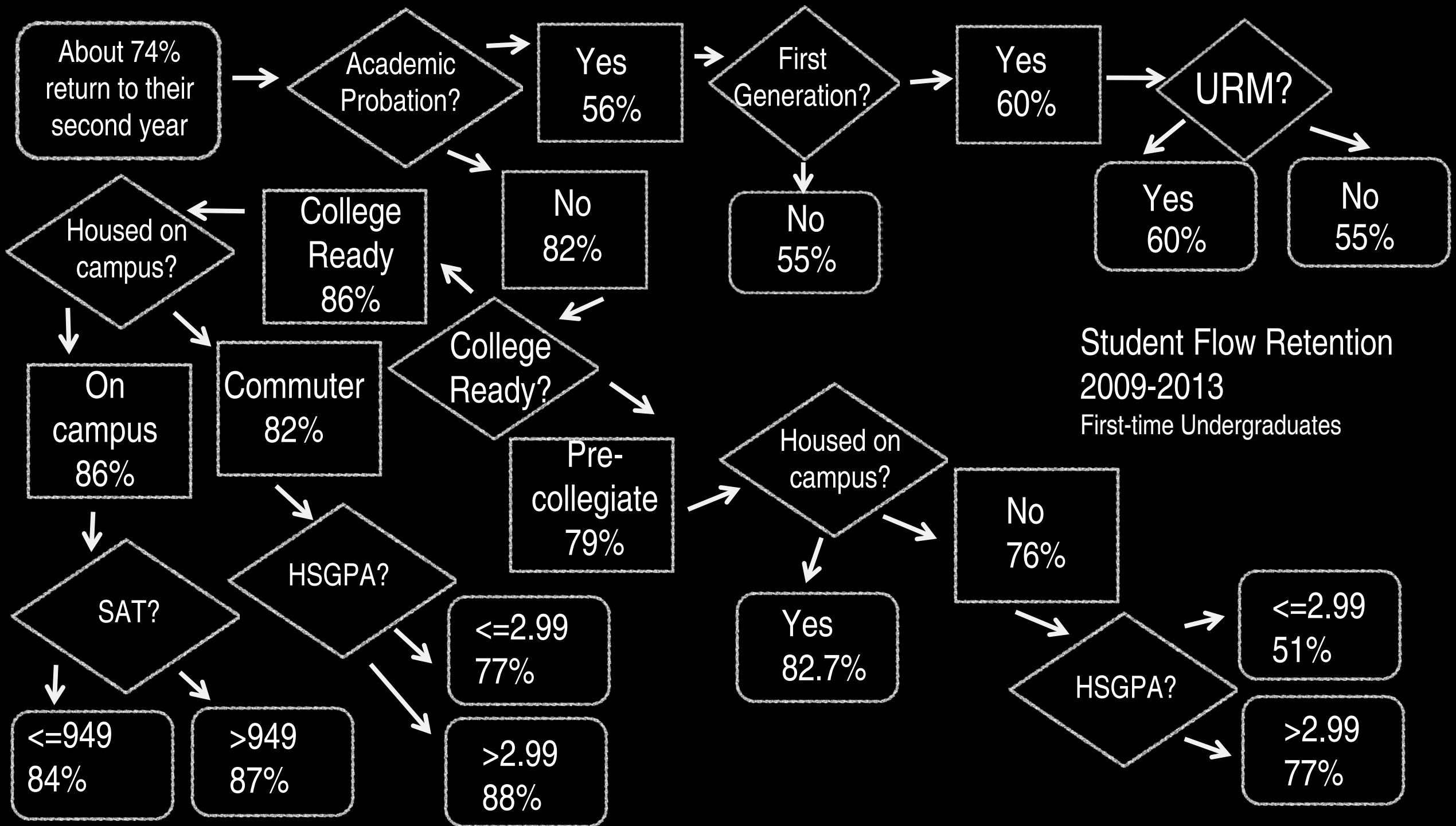


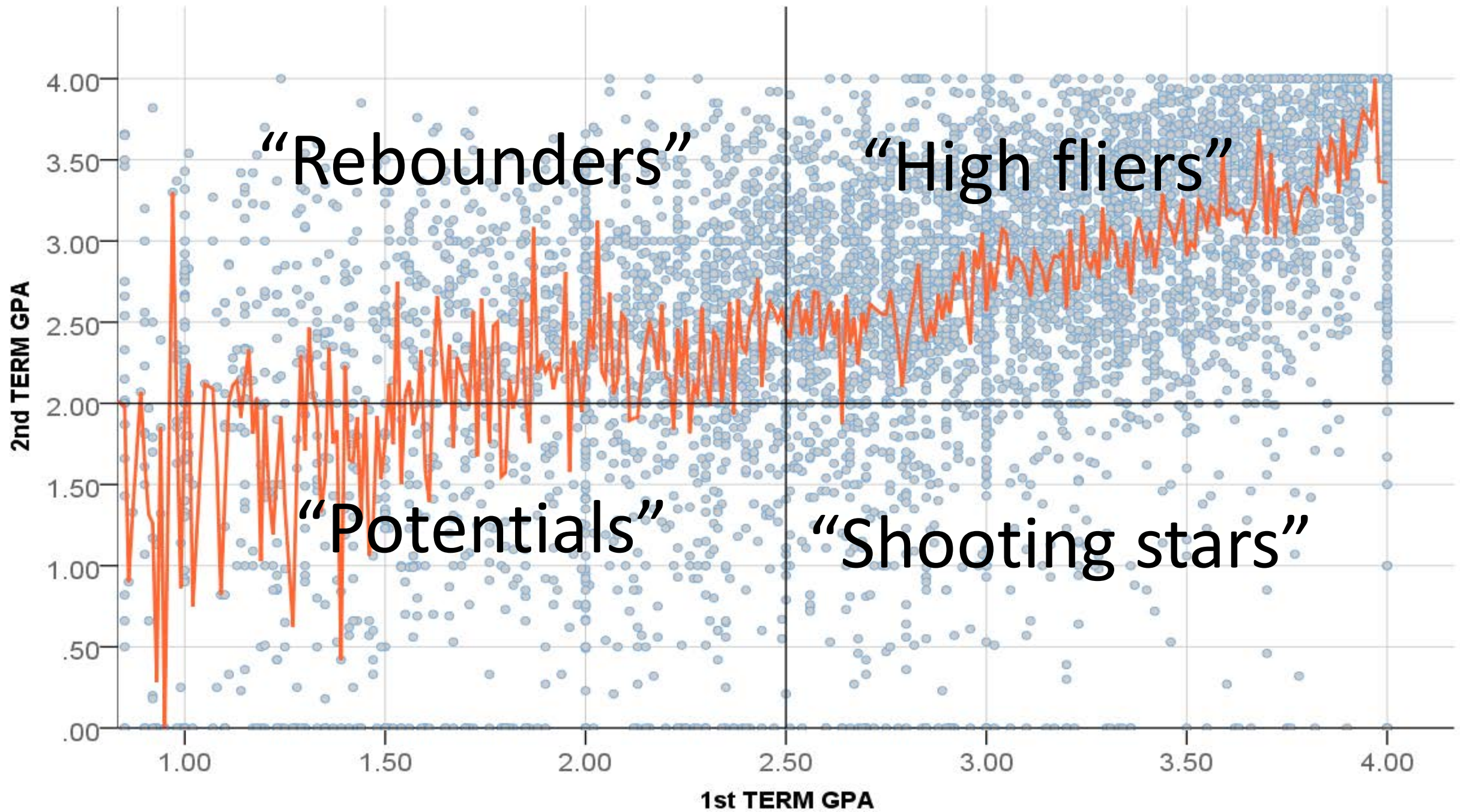
Two out of five students in the sample were classified as URM.

Initial Major



Over 40% of first-time undergraduates in the sample indicated interest in CNRS majors.





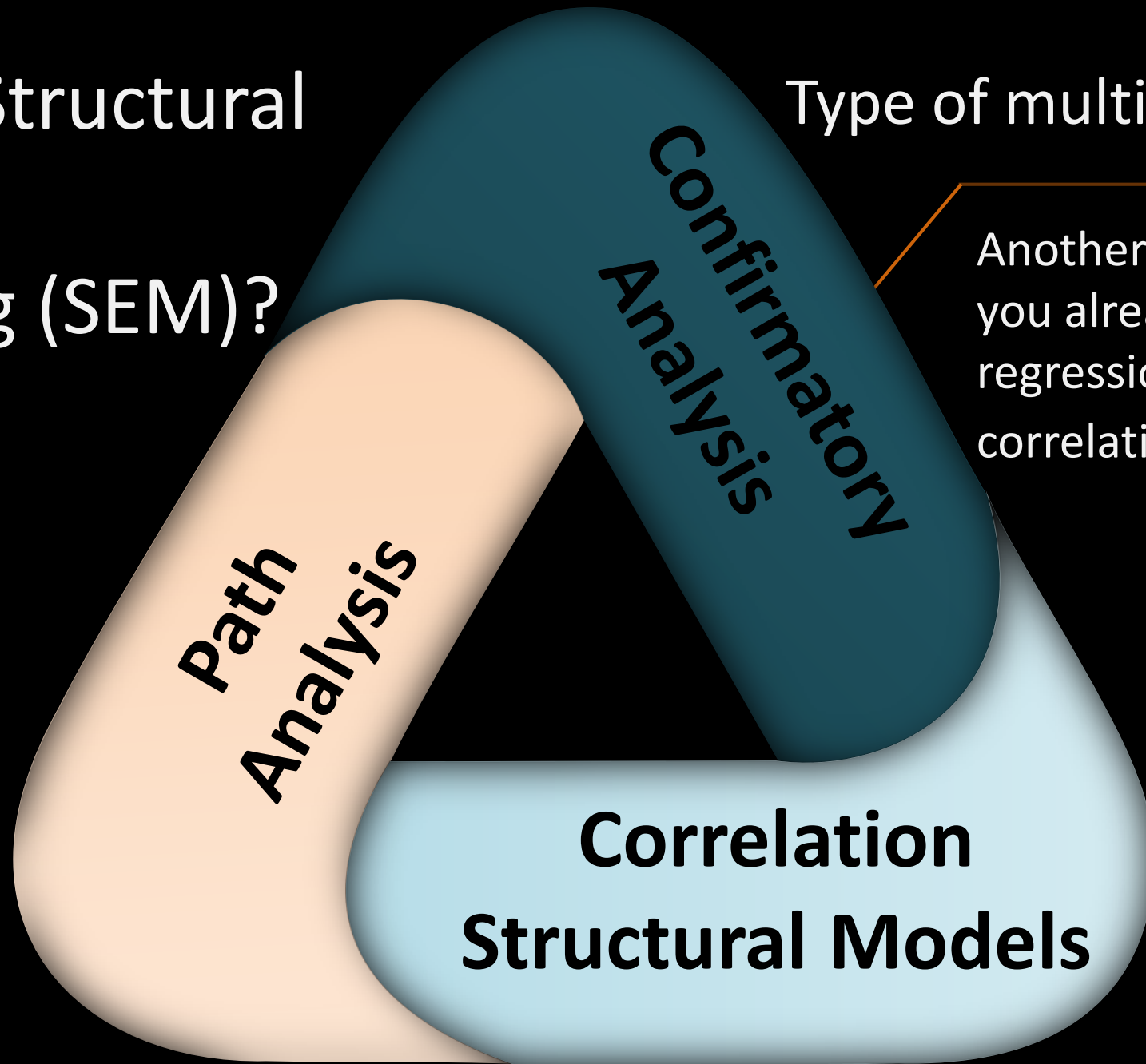
Part III

STRUCTURAL EQUATION MODELING FOR DUMMIES (LIKE ME!)

What is Structural Equation Modeling (SEM)?

Type of multivariate technique

Another way of doing what you already do—such as regression and correlation...but cooler...



A priori...

Models testing hypotheses...

Researcher needs to know which variables we think affect others...

And the directionality of that affect...

Observed vs latent variables...

All about the covariance, baby...

Can use both in the experimental and non realm (one design to rule them all?)...

...Not about statistical significance

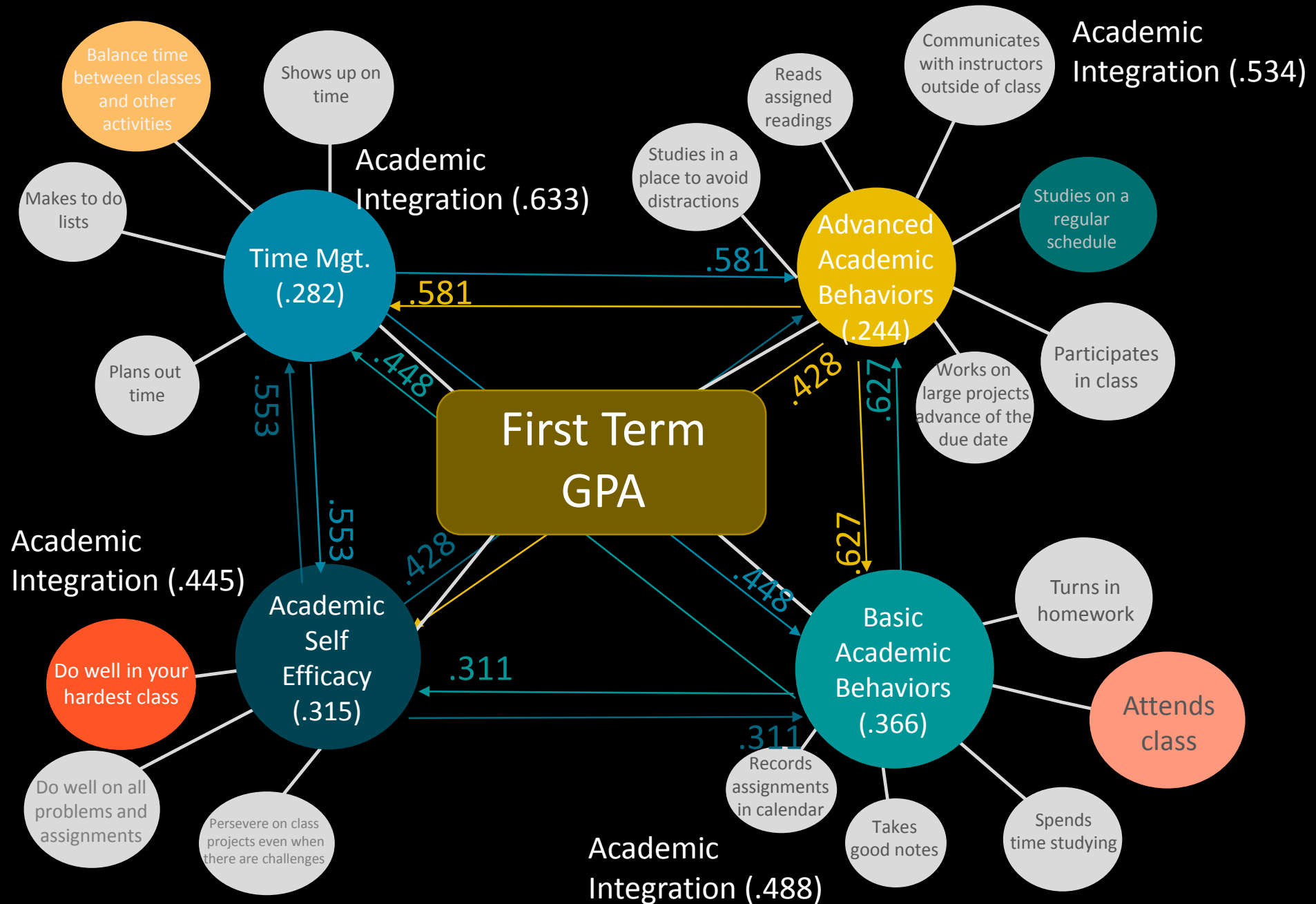
gasp

Part III

“DECOMPOSING” CNRS FIRST-TIME UNDERGRADS- APPLYING APPROACH

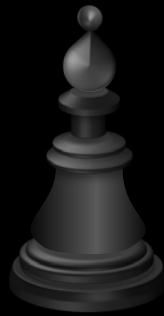


RELATIONSHIP BETWEEN FIRST TERM GPA AND...



Part IV

NEXT STEPS



Continuation & Differentiation

Trees vs Models

- Testing what we learned in the decision trees
- Confirmatory analyses with SEM

Application

- Identify student populations for further study to see how new interventions impact student success
- Academic Probation
 - Early feedback from faculty
 - De-coupling drop-add from census



The Endgame

“Mastering the endgame requires dedication and time,...Precision is also required ...since this is the phase of the game where the result will be decided. ...where players tend to get a little bit tired and unaware of what they’re doing, and can lead to small mistakes that could be costly...stay alert at all times and finish what you started!”

Q&A