CALIFORNIA STATE UNIVERSITY
FULLERTON™

Finish in Four: An Analysis of Men, STEM, and Underrepresented Students

Noha Abdou, Michael Biesiada, Kevin Yang,
Jyenny Babcock

November 7, 2019

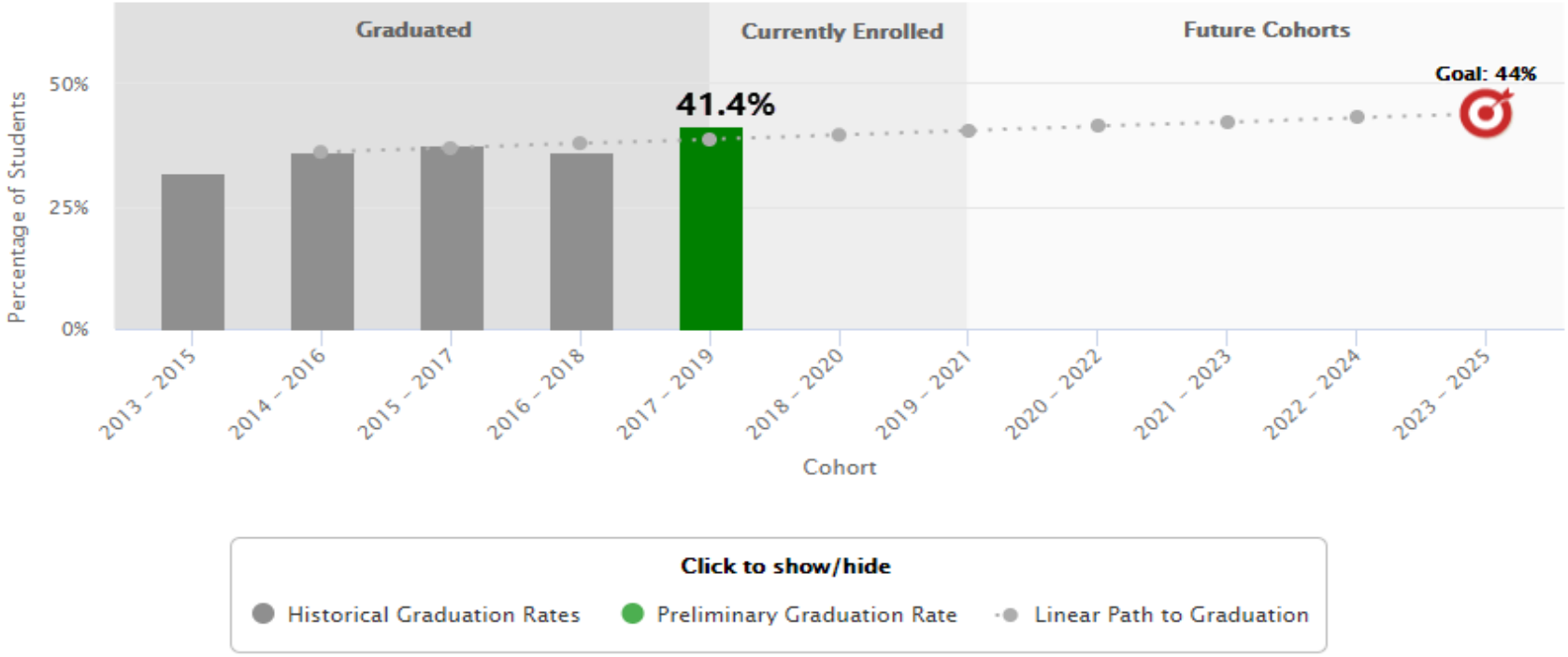
INTRODUCTION

- Graduation Initiative 2025 (GI 2025)
- 2016 Men of Color Focus Group
- 2018 National Survey of Student Engagement (NSSE)
- Model Summaries
- Findings and recommendations

GRADUATION INTIATIVE 2025

2-Year Transfer Graduation Goal

Remember, there is still time to make changes to reach your goals for 2025.

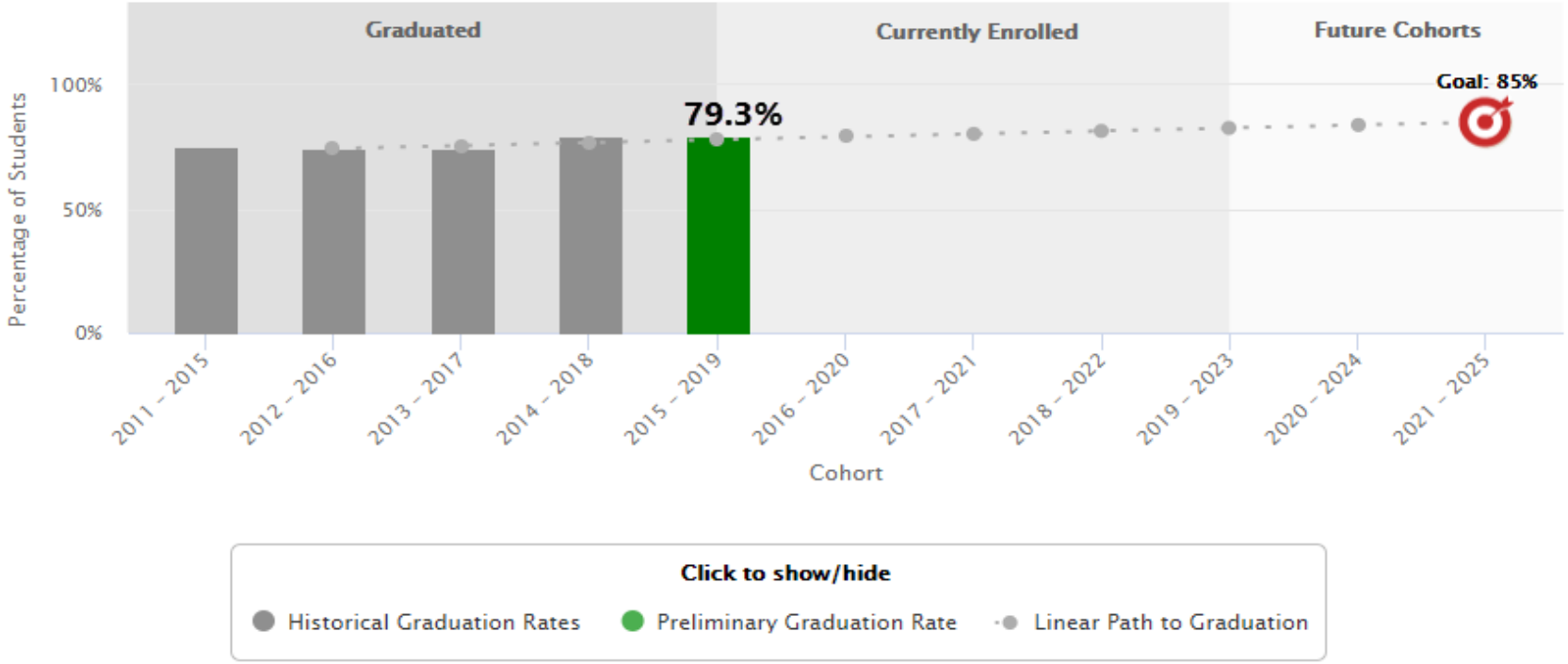


Source: California State University (CSU) Office of the Chancellor

GRADUATION INTIATIVE 2025

4-Year Transfer Graduation Goal

Remember, there is still time to make changes to reach your goals for 2025.

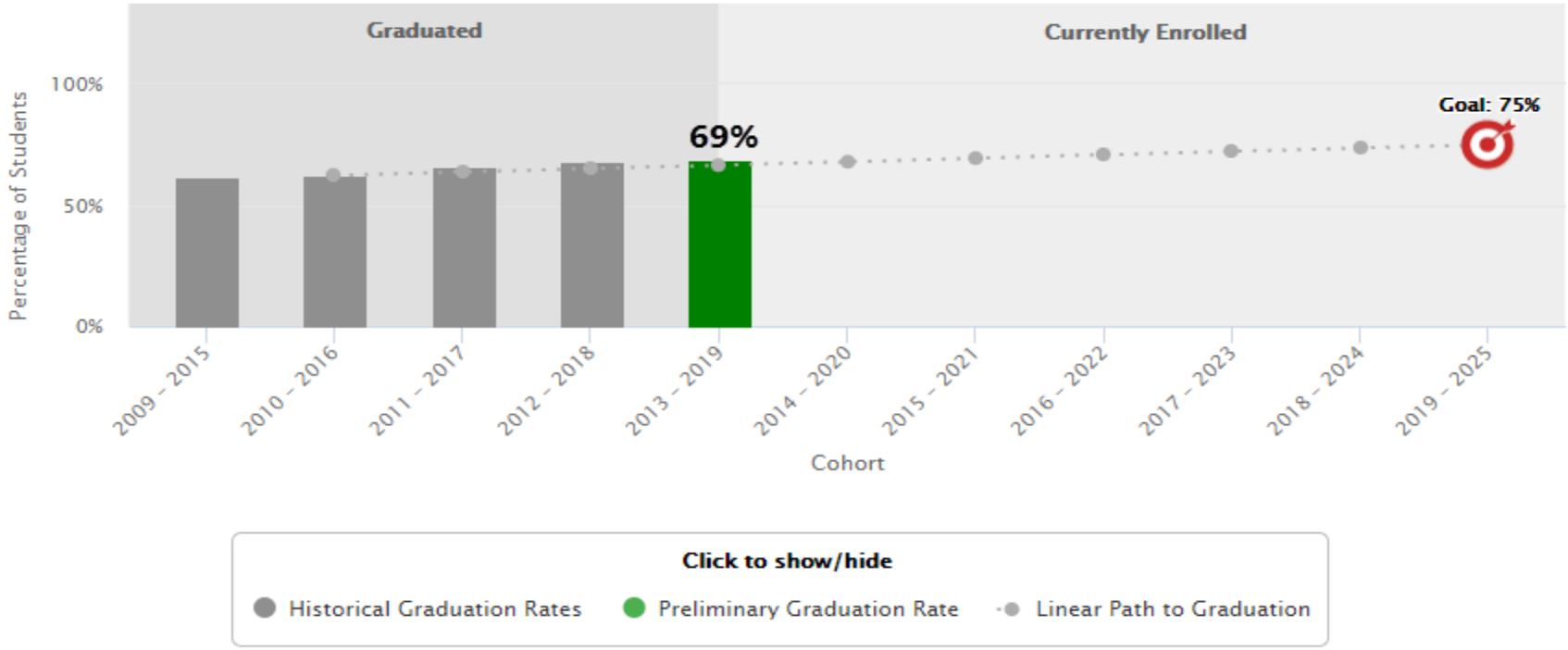


Source: California State University (CSU) Office of the Chancellor

GRADUATION INTIATIVE 2025

6-Year Freshman Graduation Goal

Remember, there is still time to make changes to reach your goals for 2025.

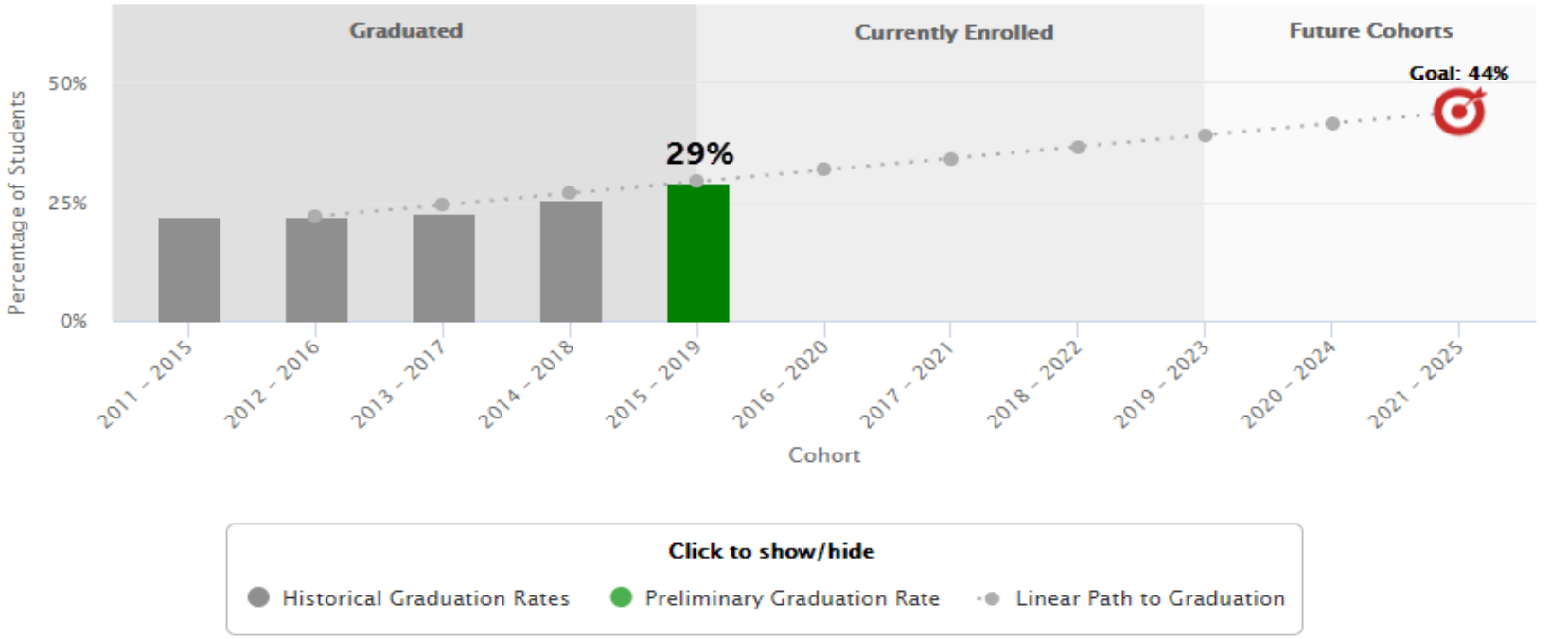


Source: California State University (CSU) Office of the Chancellor

GRADUATION INTIATIVE 2025

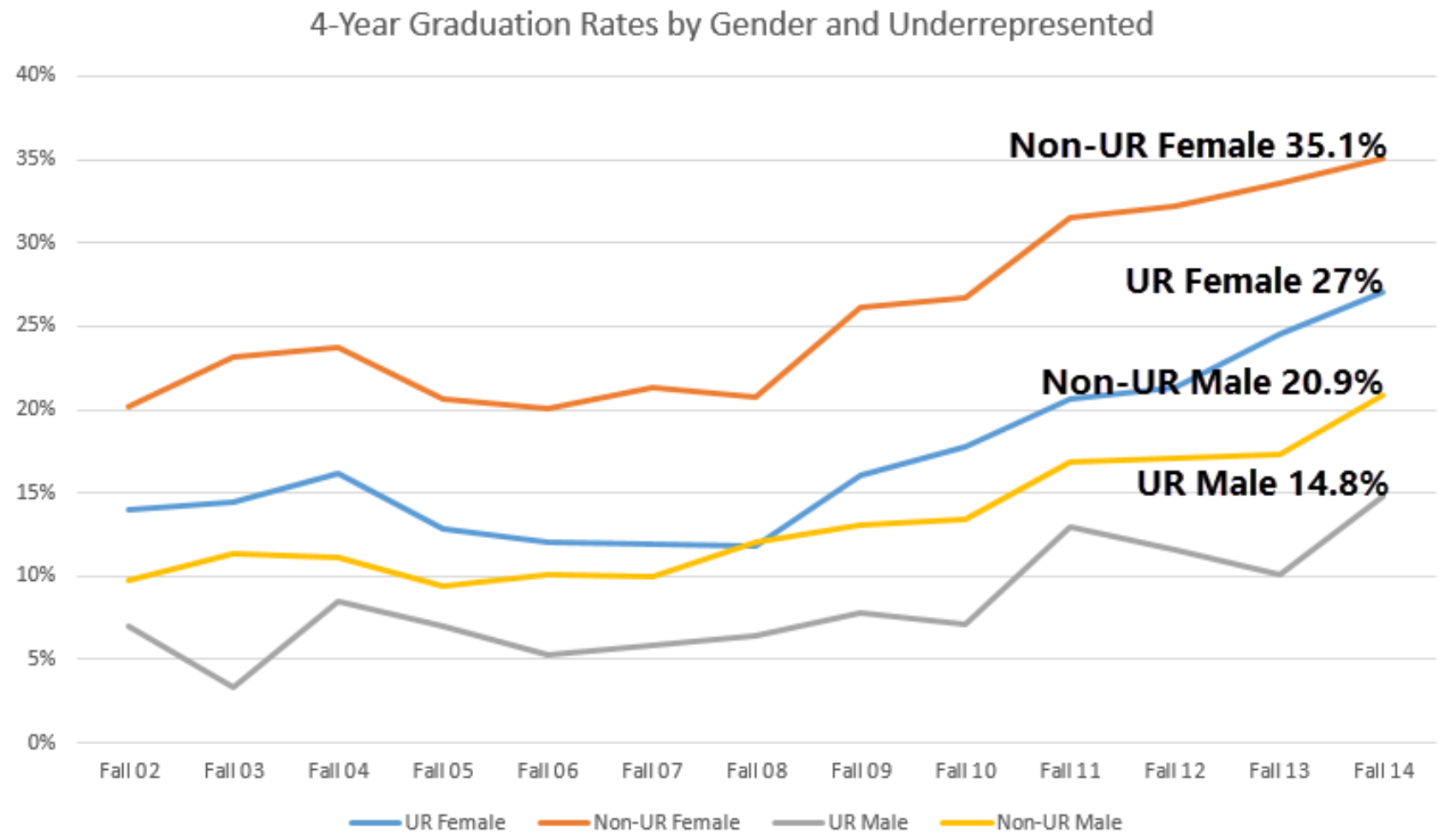
4-Year Freshman Graduation Goal

Remember, there is still time to make changes to reach your goals for 2025.



Source: California State University (CSU) Office of the Chancellor

4-Year Graduation Rates



Men of Color – Research Design

32

Black male students

3 rounds of focus groups

1 in fall 2015
2 in spring 2016

Men of Color - Themes

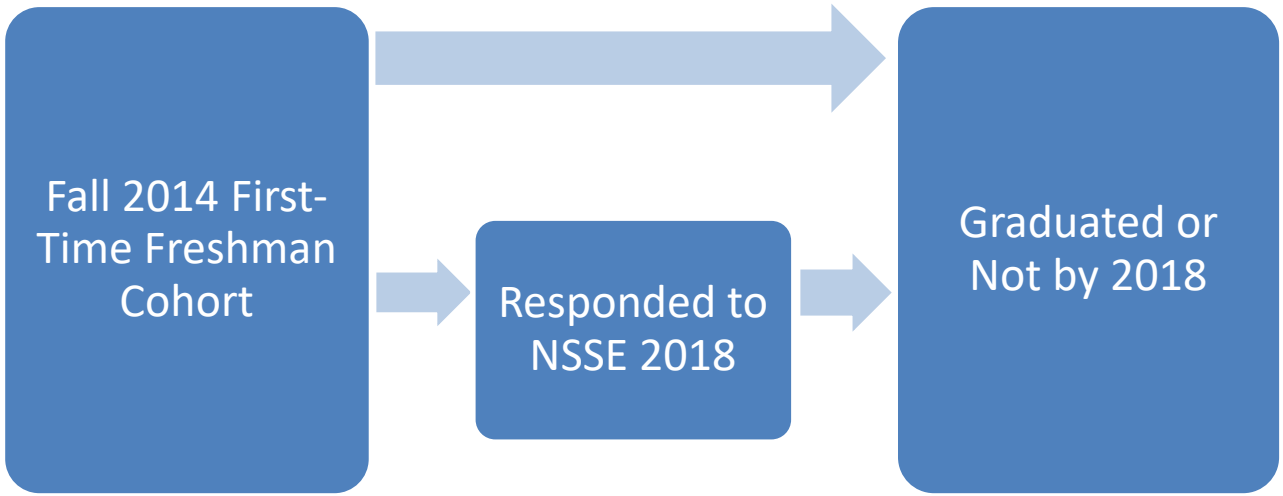
Themes

- Environment
  - Where I come from
  - First impression of CSUF
- Barriers
  - What I face
- Strategies
  - How I persist
  - Support I need

Men of Color - Outcomes

- Recommendations:
  - Mentors
  - Internship Programs
- Presented to Academic Senate
- Male Success Initiative opened spring ’19

ANALYSIS


Fall 2014 First-Time Freshman Cohort
Responded to NSSE 2018
Graduated or Not by 2018

VARIABLES OF INTEREST

- Dependent Variable
  - Graduated in 4 years or not
- Independent Variables
  - Sex
  - Underrepresented (UR) status
  - STEM majors
  - NSSE variables

NSSE 2018

Theme	Engagement Indicators
Academic Challenge	Higher-Order learning Reflective & Integrative Learning Learning Strategies Quantitative Reasoning
Learning with Peers	Collaborative Learning Discussions with Diverse Others
Experiences with Faculty	Student-Faculty Interaction Effective Teaching Practices
Campus Environment	Quality of Interactions Supportive Environment

Which 3 NSSE Engagement Indicators do you think have the best predictive power with FTF 4-year graduation?

Go to www.menti.com and use the code 92 67 17

Fall 2014 First-Time Freshman Cohort
(n = 4,243)

Fall 2014 First-Time Freshman Cohort			
	Non-UR	UR	Total
Female	1,214 (51%)	1,133 (60%)	2,347 (55%)
Male	1,154 (49%)	742 (40%)	1,896 (45%)
Total	2,368	1,875	4,243

Notes: UR: Black, Hispanic, Native American/American Indian

Fall 2014 First-Time Freshman Cohort			
	Non-UR	UR	Total
Non-STEM	1,700 (72%)	1,437 (77%)	3,137 (74%)
STEM	668 (28%)	438 (23%)	1,106 (26%)
Total	2,368	1,875	4,243

Notes: STEM At Entry: College of Natural Science & Mathematics,
College of Engineering & Computer Science

Fall 14 Cohort

Fall 2014 Cohort Models	Model 1		Model 2	
Variable	Odds Ratio	*p*	Odds Ratio	*p*
Male	0.572	**0.000**	0.552	**0.000**
UR	0.660	**0.000**	0.694	**0.000**
STEM	0.443	**0.000**	0.453	**0.000**
Male * UR			1.012	0.943
Male * STEM			1.183	0.405
STEM * UR			0.699	0.098
Constant	0.610	0.000	0.603	0.000
Nagelkerke R Square	0.066		0.067	
N (observations)	4243		4243	

Notes: DV: Graduate in 4 years or less (1) or not (0)

P values < .05 in bold

Males, UR, and STEM are less likely to graduate in 4 years

NSSE Model (0)

- HO and RI are useful predictors
- Students reporting higher HO in courses are less likely to graduate in 4 years
- Conversely, students reporting higher RI are more likely to graduate in 4.

Variables	NSSE Model 0 Odds Ratio	*p*
NSSE		
Higher-Order Learning	0.976	**0.019**
Reflective and Integrative Learning	1.058	**0.000**
Learning Strategies	0.993	0.436
Quantitative Reasoning	0.986	0.055
Collaborative Learning	1.012	0.174
Discussions with Diverse Others	1.003	0.684
Student-Faculty Interaction	0.995	0.539
Effective Teaching Practices	1.020	0.069
Quality of Interactions	0.997	0.797
Supportive Environment	0.992	0.417
Constant	0.479	0.201
Model Summary		
Nagelkerke R Square	0.106	
N (observations)	444	

Notes: DV is graduated in 4 years or less (1) or not (0)

P values < 0.05 in bold

NSSE Items

Higher Order Learning

- Coursework emphasized applying facts, theories, or methods to practical problems
- Coursework emphasized analyzing an idea, experience or line of reasoning in depth
- Coursework emphasized forming a new idea or understanding

Reflective and Integrative Learning

- Combining ideas from different courses
- Connecting learning to societal problems
- Including diverse perspectives in course discussions
- Understanding someone else's views

NSSE Models

Variable	NSSE Model 1 Odds Ratio	NSSE Model 2 Odds Ratio	NSSE Model 3 Odds Ratio	NSSE Model 4 Odds Ratio	NSSE Model 5 Odds Ratio	NSSE Model 6 Odds Ratio	NSSE Model 7 Odds Ratio
NSSE							
Higher-Order Learning	0.984	0.983	0.987	0.984	0.990	0.990	0.993
Reflective and Integrative Learning	**1.048**	**1.046**	**1.045**	**1.048**	**1.044**	**1.037**	**1.030**
Demographic							
Male		**0.451**	0.671				
Male * HO			0.987				
Male * RI			1.003				
UR				1.054	1.273		
UR * HO					0.984		
UR * RI					1.013		
STEM						**0.247**	**0.156**
STEM * HO							0.988
STEM * RI							1.026
Constant	0.575	0.849	0.749	0.567	0.525	0.994	1.107
Model Summary							
Nagelkerke R Square	0.068	0.107	0.109	0.069	0.071	0.162	0.165
N (observations)	530	530	530	530	530	530	530

Notes: DV is graduated in 4 years or less (1) or not (0)

Sig. odds with p-value < 0.05 in bold

Summary

- Males, UR, and STEM are less likely to graduate in 4 years
- Reflective and Integrative Learning is a consistent positive predictor regardless of demographics
- Unclear why Higher Order Learning predictive power changes

Recommendations

- Male Success Initiative Center step in the right direction, possibly suggest expanding services to all males
- Suggest further study on Higher Order Learning for students
- Reflective and Integrative Learning engagement is useful

Thank You

Questions?