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Graduation Initiative 2025: Role of Institutional Research to support Data-Driven Decision at CSU Fullerton

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California Association of Institutional Research Conference

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CSU Graduation Initiative 2025

- Academic Preparation
- Enrollment Management
- Student Engagement and Well-Being
- Financial Aid
- Data-Driven Decision Making
- Administrative Barriers

➔ Increase Graduation Rates / Close Gaps

Cal State Fullerton Goals
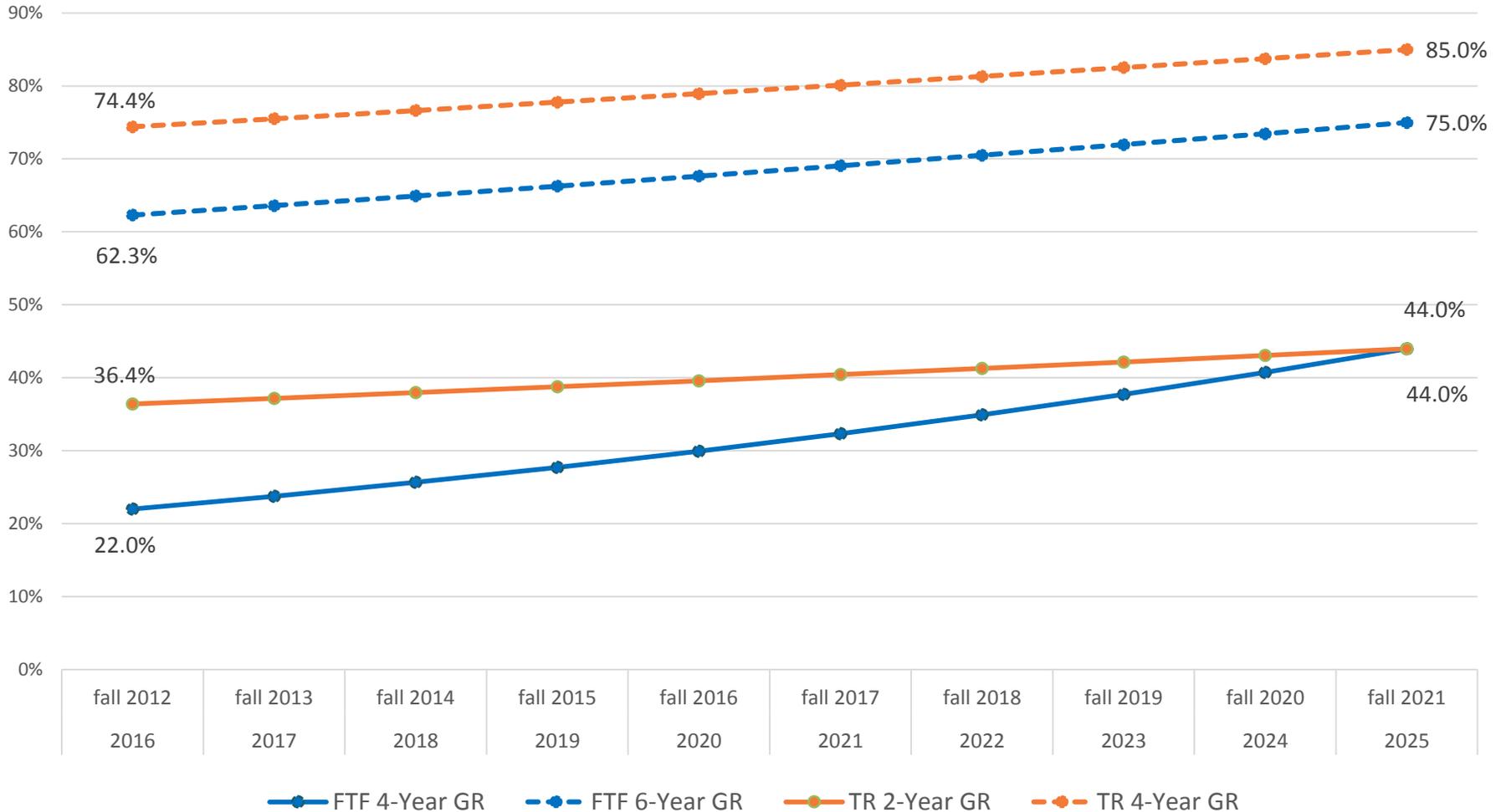
6-year Graduation Rates of First-Time Freshmen
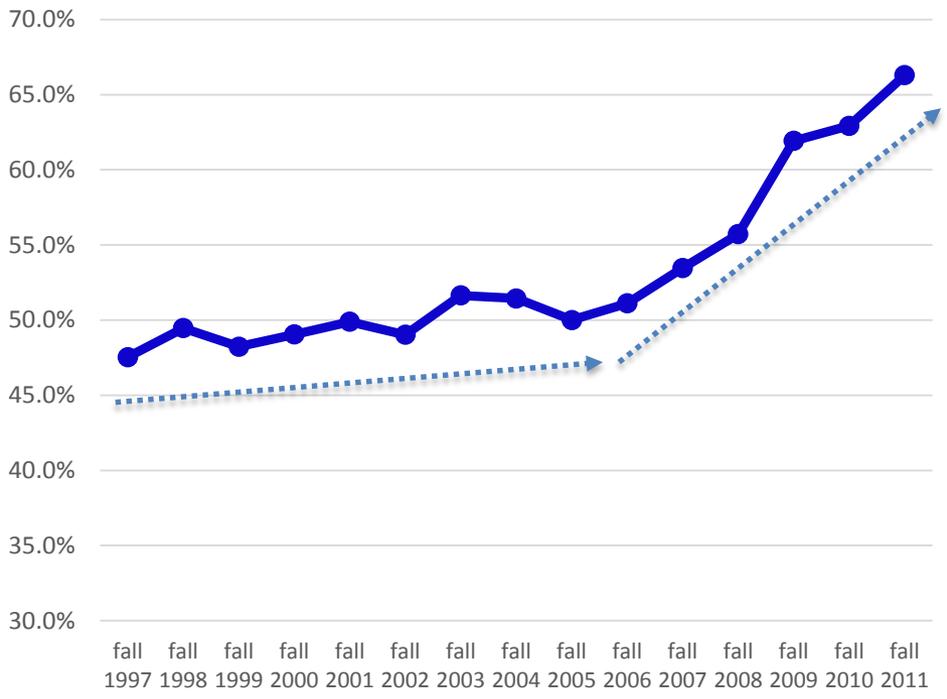
6-Year Graduation Rates
First-Time Freshmen

4-Year Graduation Rates
Transfers

4-Year Graduation Rates of Transfers
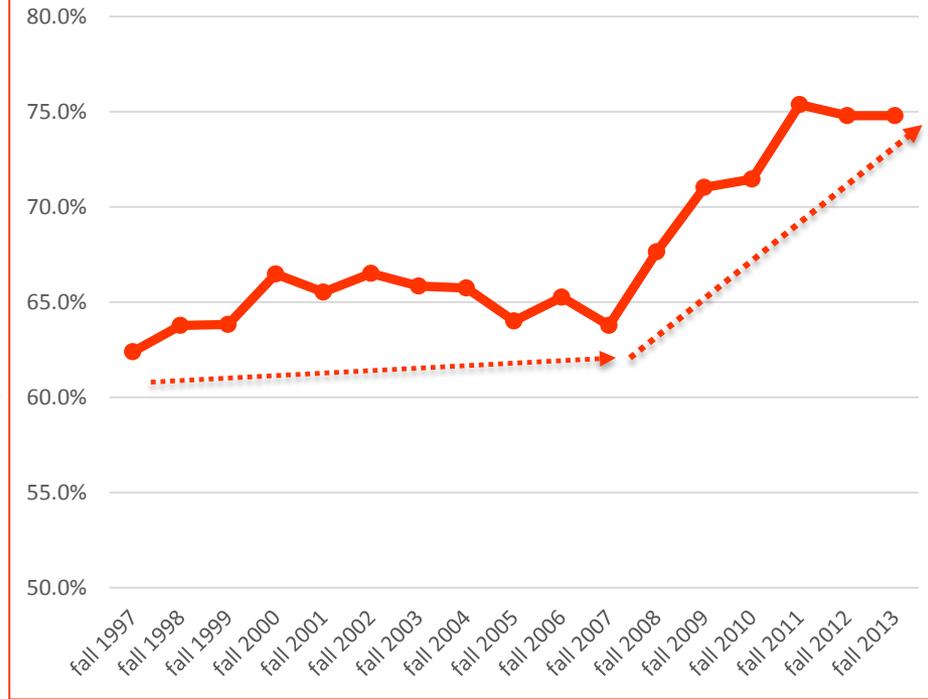
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4-year Graduation Rates of First-Time Freshmen
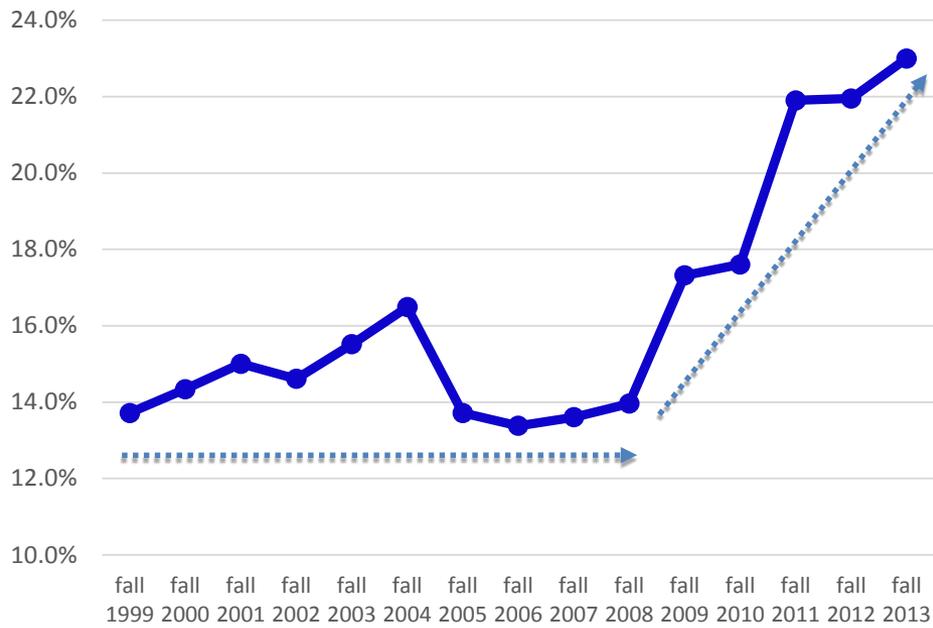
4-Year Graduation Rates
First-Time Freshmen

2-Year Graduation Rates of Transfers

2-Year Graduation Rates
Transfers

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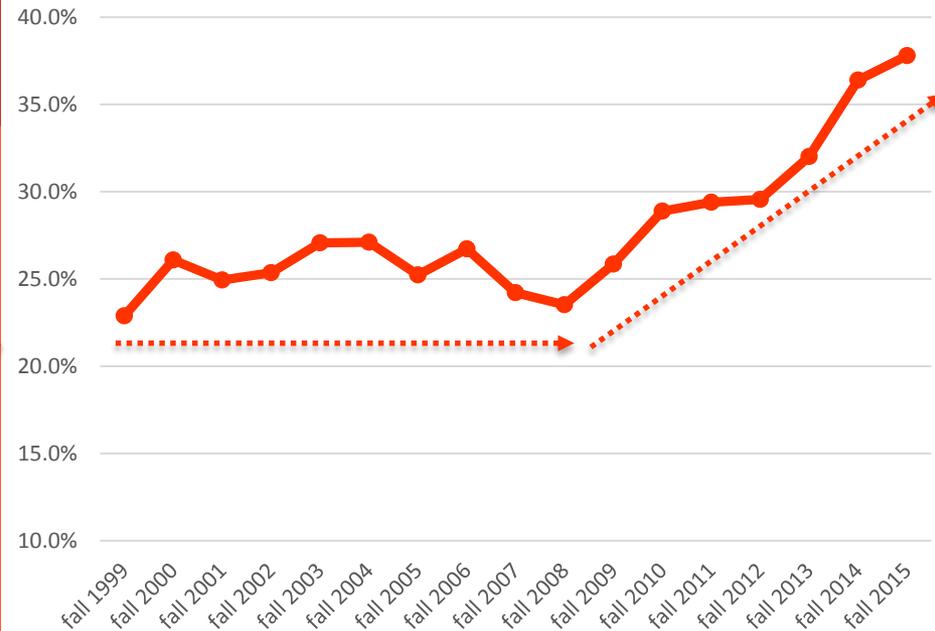
2016-2017 : GI 2025 Advisory Group

- ➢ *Strategic Enrollment Services*
- ➢ *Registration, Records, Graduation, TDA*
- ➢ *Advising Group*
- ➢ *Students in Transition*
- ➢ *Technology*

GI 2025 Goals & Strategies : Cal State Fullerton

Long-Term Goals	Strategies
Enrollment Management	• *IT and IRAS support to develop/maintain interactive dashboard and train users for data-driven decision making* • ***Strategic Analysis Support***
Data Capabilities	
Advising	
Fostering a Culture of Student Success	
Success in Low Completion-Rate Courses	
Targeted Support Services	
Pathways with K–12 and Community Colleges	

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Data-Driven Decision Making

Why 4 Years !!

Data-Driven Decision Making

1

15 Units / Term

30 Units / Year

15 Units / Term

30 Units / Year

Data-Driven Decision Making

- **15 Units Campaign**
  - Concern for GPA ?
  - 1-Year Retention Rates ?
  - 4-Year Graduation Rates ?
  - Gap for Underrepresented Students ?
  - Gender Gap ?

Strategic Analysis !

Time to Look into Data in Deeper Level →

Be Proactive →

Data-Driven Decision Making: <u>15 Units Takers</u>
15 Units Takers Graduate Better in 4-Years

Logistic Regression on FTF *4-Year Graduation Rates*

Effects	Coefficient (B)	Wald χ^2	P	Odds ratio
15 Units in 1st Term	.368	54.180	.000	1.445
15 Units in 2nd Term	.996	380.029	.000	2.708
Pell_Status	-.350	41.764	.000	.705
First_Generation	-.268	18.127	.000	.765
URM	-.244	22.357	.000	.783
Sex	.712	194.354	.000	2.038
HSGPA	1.115	274.085	.000	3.048

Data-Driven Decision Making: <u>15 Units Takers</u>
15 Units Takers Graduate Faster

Linear Regression on FTF *Time-To-Degree*

Effects	Coefficient (B)	Beta	F	P
15 Units in 1st Term	-.147	-.093	-8.249	.000
15 Units in 2nd Term	-.288	-.205	-17.984	.000
Pell_Status	.100	.066	5.633	.000
First_Generation	.048	.029	2.363	.018
URM	.064	.044	3.752	.000
Sex	-.188	-.130	-11.750	.000
HSGPA	-.248	-.140	-12.709	.000

Data-Driven Decision Making: 15 Units Takers
15 Units Takers Graduate Faster

Semester	Units Grouping	Time-To-Degree
1st Semester	< 15 Units	4.92 Yrs
	>= 15 Units	4.66 Yrs
2nd Semester	< 15 Units	5.02 Yrs
	>= 15 Units	4.66 Yrs

Data-Driven Decision Making: <u>15 Units Takers</u>

Looking at the History – Trends of 15 units Taking Pattern

Data-Driven Decision Making: 15 Units Takers

- ## Units Taken of First-Time Frosh
  - 2010 Cohort ~ 2013 Cohort

Freshmen Group	Fall 2013		Fall 2012		Fall 2011	
	N	%	N	%	N	%
Total # of FTF	4667	100%	4526	100%	4195	100%
< 12 Units	155	3%	107	2%	104	2%
= 12 units	1256	27%	1060	23%	1041	25%
12 < units < 15	2047	44%	1868	41%	1677	40%
units > 15	1209	26%	1491	33%	1373	33%

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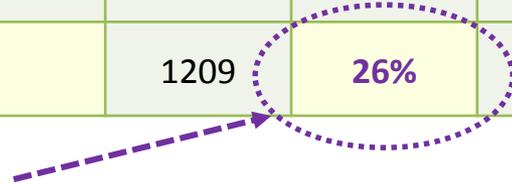
30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

Planning #1 for Analysis

Logistic Regression

DV: 4-Year Grad Rates

IV: HS GPA, URM, Pell, 1st Gen, Sex, 30-Units, URM x 30-Units

30 Units Takers: URM vs. Non-URM
First-Time Freshmen 2011-2013 Cohort

4-Year Grad Rates
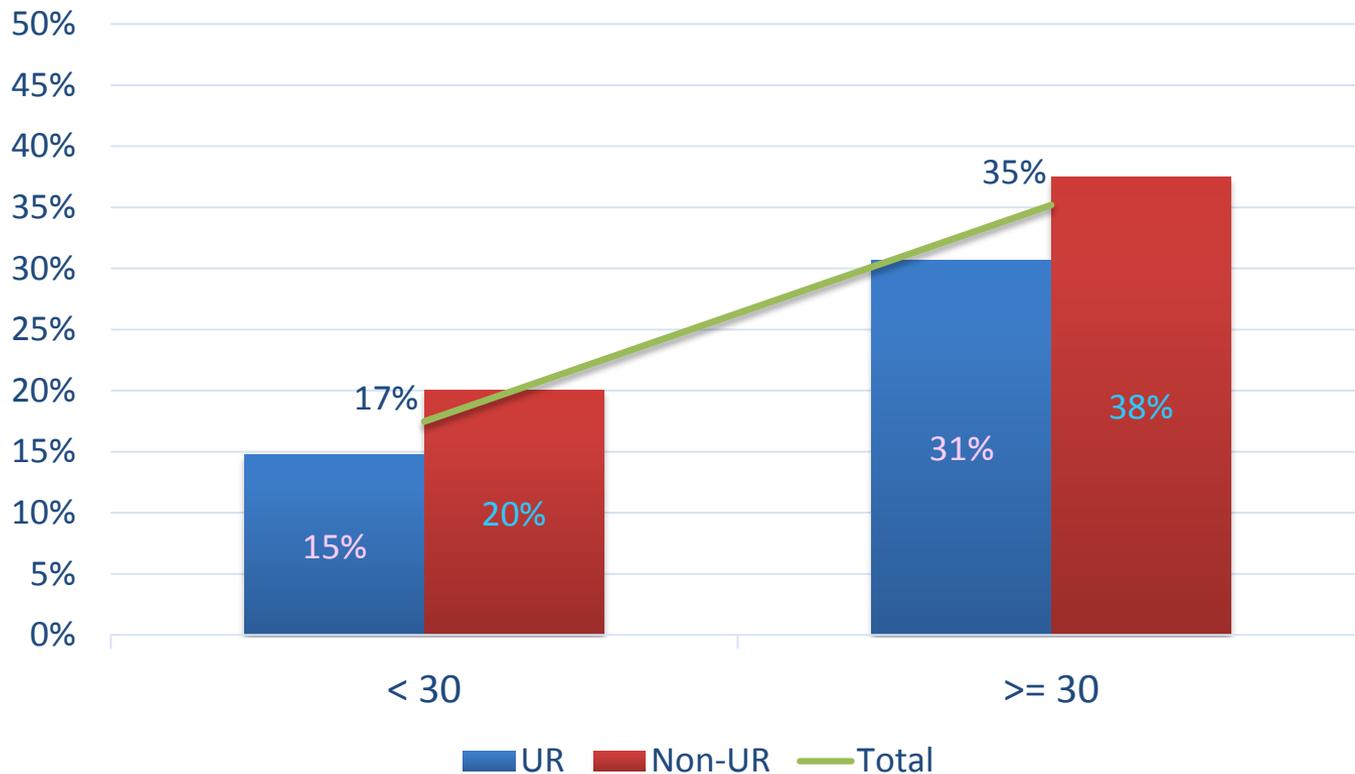
30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

Graduation Rates

1st Yr Units	UR	Non-UR	Total
< 30	15%	20%	17%
>= 30	31%	38%	35%
Total	18%	26%	22%

- UR: increase by 16 percentage point, increase by 107 percent
- Non-UR: increase by 18 percentage point, increase by 90 percent

30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

Graduation Rates Ratio (GRR)

1st Yr Units	UR	Non-UR
< 30	1 (reference)	GRR = 1.33
>= 30	1 (reference)	GRR = 1.23

30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

Graduation Rates Ratio (GRR)

1st Yr Units	UR	Non-UR
< 30	1 (reference)	GRR = 1.33
>= 30	GRR = 2.07	GRR = 2.53

Logistic Regression with Interaction: 4-Year Graduation Rates

Variables	B	Wald	P.	Exp(B)
HS GPA	1.001	233.495	.000	2.721
>= 30 Units	.836	205.992	.000	2.307
Sex	.784	267.770	.000	2.189
UR (Underrepresented)	-.239	16.699	.000	.787
1st Gen	-.342	35.296	.000	.710
Pell	-.354	53.010	.000	.702
30 Units x UR	**.056**	**.325**	**.569**	**1.057**

Nagelkerke R Squared = .14

Logistic Regression with Interaction: 4-Year Graduation Rates

Variables	Effects
HS GPA	+ + +
>= 30 Units	+ + +
Sex	+ + +
UR (Underrepresented)	- -
1st Gen	- -
Pell	- -
30 Units x UR	**No Interaction** (Both UR & Non-UR gained similar benefits through taking 30 units / year)

30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

Planning #2 for Statistical Analysis

DV: 1-Year Campus GPA,

4-Year Grad GPA

Analysis of Covariance

*IV*: HS GPA, URM, Pell, 1st Gen, Sex,

30-Units, URM x 30-Units

30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

1-Year Campus GPA

1st Yr Units	UR	Non-UR	Total
< 30	2.74	2.90	2.82
>= 30	2.89	3.05	3.00
Total	2.77	2.95	2.87

30 Units Takers: URM vs. Non-URM
First-Time Freshmen 2011-2013 Cohort
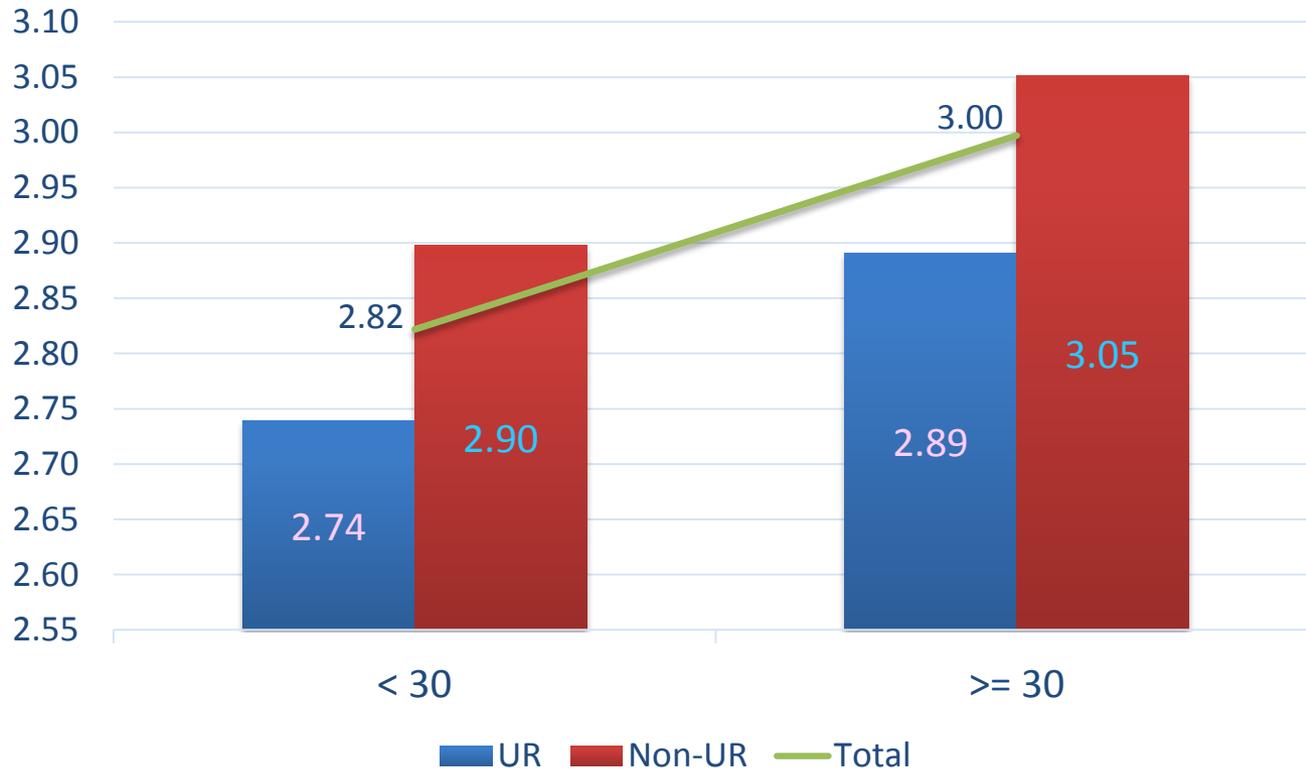
1-Year Campus GPA

2-Way Analysis of Covariance:
1-Year Campus GPA

Estimated Marginal Means of Retention1YearGPA
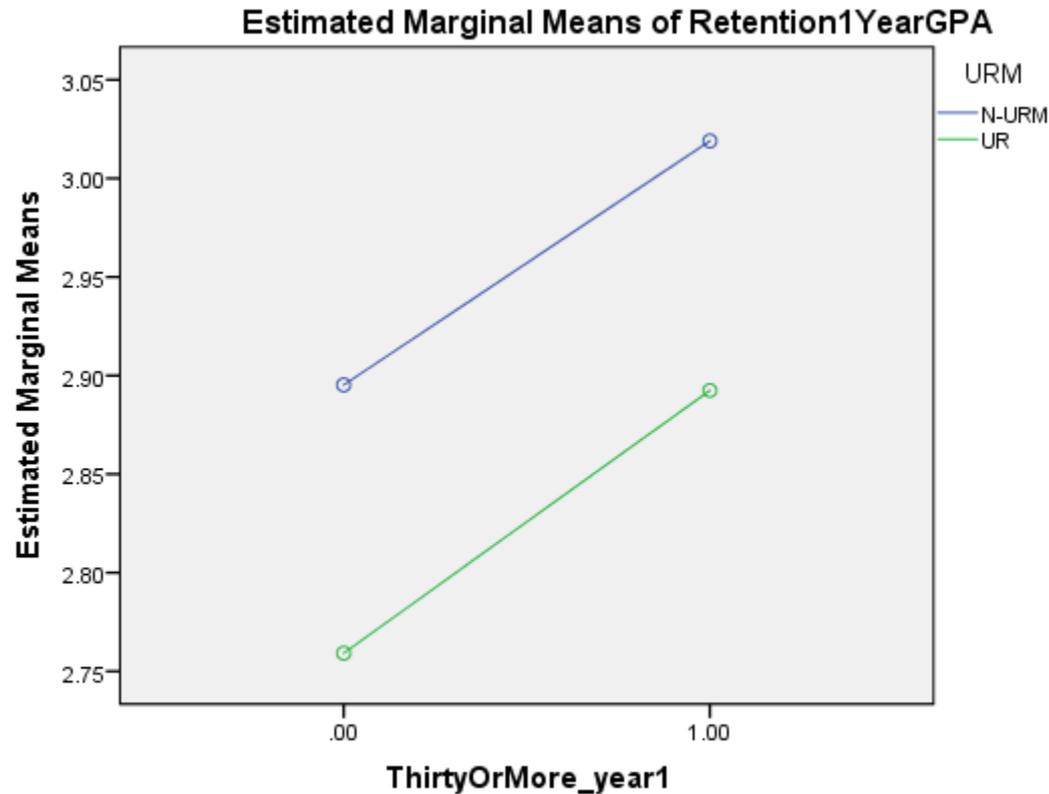
2-Way Analysis of Covariance: 1-Year Campus GPA

Variables	F	Sig.
HS GPA	1861.25	.000
>= 30 Units	125.25	.000
UR (Underrepresented)	121.30	.000
Sex	102.64	.000
1st Gen	53.84	.000
Pell	10.25	.001
30 Units x UR	**.17**	**.676**

R Squared = .19

2-Way Analysis of Covariance:
1-Year Campus GPA

Variables	Effects
HS GPA	+ + + +
>= 30 Units	+ + +
Sex	+ + +
UR (Underrepresented)	- - -
1st Gen	- -
Pell	- -
30 Units x UR	**No Interaction** (Both UR & Non-UR gained similar benefits through taking 30 units / year)

30 Units Takers: UR vs. Non-UR
First-Time Freshmen 2011-2013 Cohort

4-Year Graduation GPA

1st Yr Units	UR	Non-UR	Total
< 30	2.74	2.90	2.82
>= 30	2.89	3.05	3.00
Total	2.77	2.95	2.87

30 Units Takers: URM vs. Non-URM
First-Time Freshmen 2011-2013 Cohort

4-Year Graduation GPA

	< 30	>= 30
UR	3.1867	3.1898
Non-UR	3.2766	3.2653
Total	3.240	3.243

Legend: ■ UR ■ Non-UR — Total

2-Way Analysis of Covariance: 4-Year Graduation GPA

Estimated Marginal Means of TOTGPA4yr
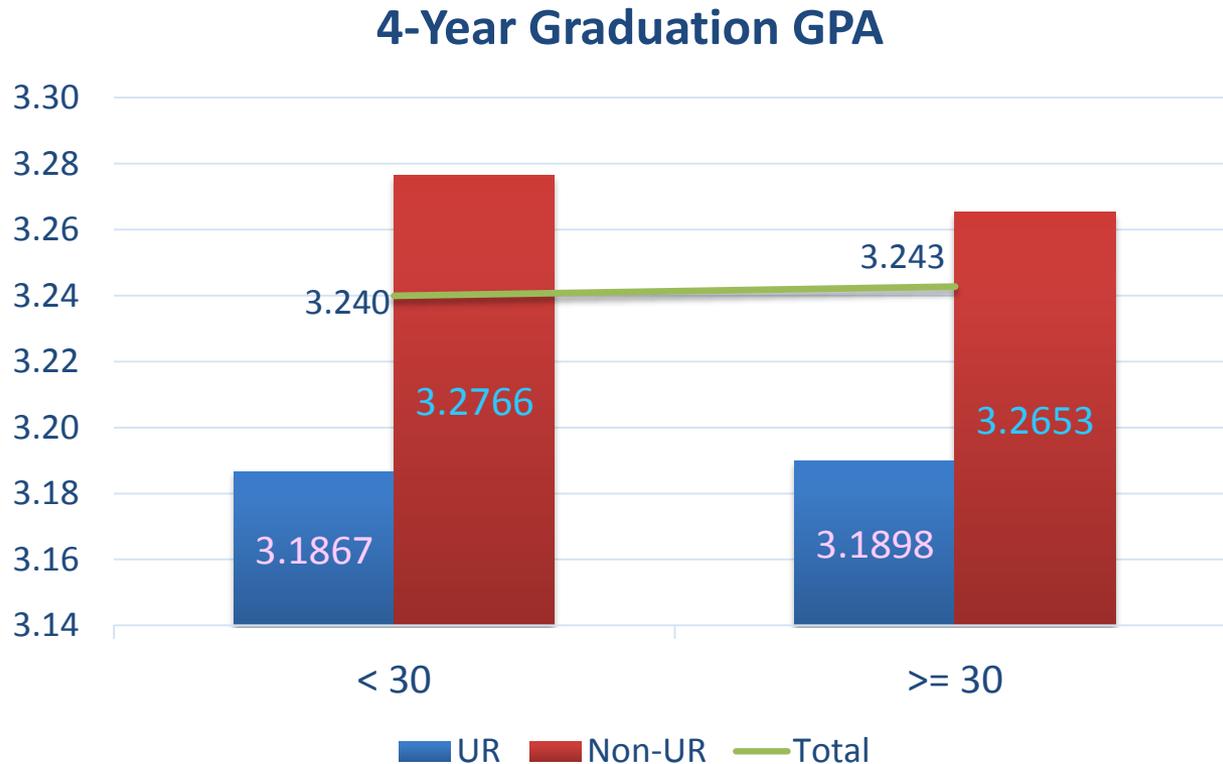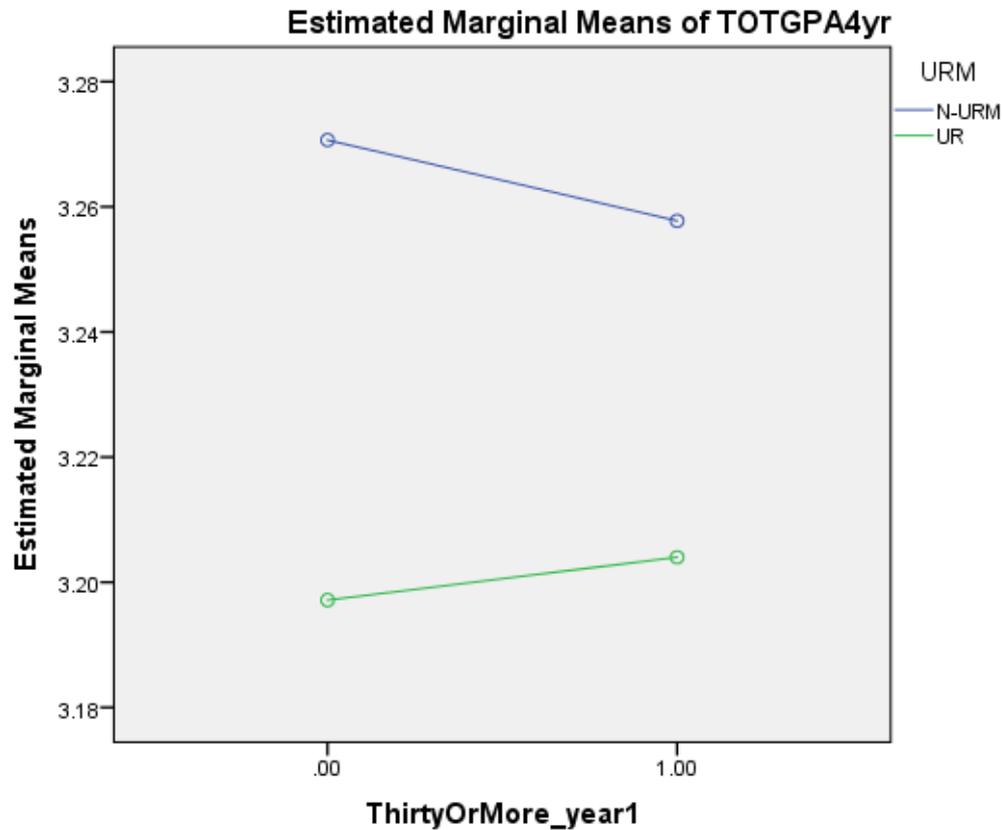
2-Way Analysis of Covariance: 4-Year Graduation GPA

Variables	F	Sig.
HS GPA	551.50	.000
>= 30 Units	.050	.822
UR (Underrepresented)	20.62	.000
Sex	17.49	.000
1st Gen	4.27	.039
Pell	1.44	.230
30 Units x UR	**.55**	**.460**

R Squared = .19

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2-Way Analysis of Covariance:
4-Year Graduation GPA

Variables	Effects
HS GPA	+ + + + +
>= 30 Units	No Significant
Sex	+ +
UR (Underrepresented)	- -
1st Gen	-
Pell	No Significant
30 Units x UR	*No Interaction* (Both UR & Non-UR gained similar benefits through taking 30 units / year)

Data-Driven Decision Making: 15 Units Takers

Unit Cap
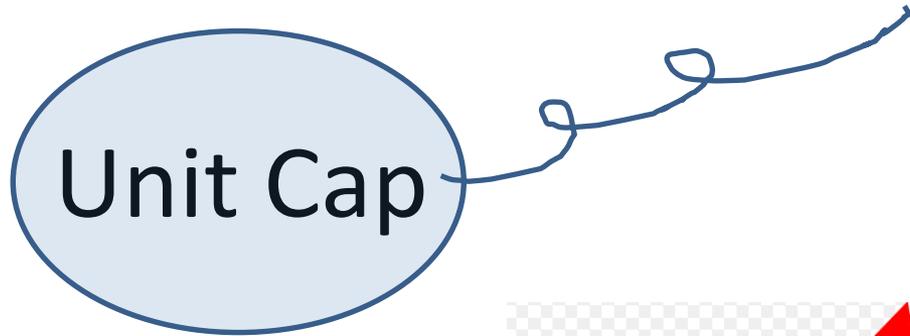
Data-Driven Decision Making: 15 Units Takers

- Units Taken of First-Time Frosh
  - 2014 Cohort ~ 2017 Cohort

Freshmen Group	Fall 2017		Fall 2016		Fall 2015		Fall 2014	
	N	%	N	%	N	%	N	%
Total # of FTF	4437	100%	4426	100%	4401	100%	4357	100%
< 12 Units	132	3%	152	3%	114	3%	114	3%
= 12 units	1050	24%	1503	34%	1500	34%	1246	29%
12 < units < 15	1369	31%	1412	32%	1590	36%	1806	41%
units > 15	1886	43%	1359	31%	1197	27%	1191	27%

Data-Driven Decision Making: <u>15 Units Takers</u>

More ?

How about after 2nd year ?

Data-Driven Decision Making: <u>15 Units Takers</u>

	# Students in cohort	4-yr Grad Rates	Sub-cohort (groups): 11,257	Sub-cohort: # Students retained for 2-yrs	# Student Graduated	Sub-cohort's 4-yr Grad Rate
Fall 2011 – Fall 2013 FTF Cohort	13,022	22.1%	Students who completed first 2 Years AND attempted 30 units a year or more for the first two years	1,754 (16%)	850	48%
			Students who completed first 2 Years BUT did not attempt 30 units a year for the first two years	9,503 (84%)	2,024	21%

	# Students in cohort	4-yr Grad Rates	Sub-cohort (groups)	Sub-cohort: # Students retained for 2-yrs	# Student Graduated	Sub-cohort's 4-yr Grad Rate
Fall 13	4,512	22.6%	Students who completed first 2 Years AND attempted **30 units** a year or more for the first two years	473 (12%)	223	47.1%
			Students who completed first 2 Years BUT did **not** attempt **30 units** a year for the first two years	3430 (88%)	793	23.1%
Fall 12	4,419	22.0%	Students who completed first 2 Years AND attempted **30 units** a year or more for the first two years	625 (16%)	314	50.2%
			Students who completed first 2 Years BUT did **not** attempt **30 units** a year for the first two years	3,196 (84%)	653	20.4%
Fall 11	4,091	21.9%	Students who completed first 2 Years AND attempted **30 units** a year or more for the first two years	656 (19%)	313	47.7%
			Students who completed first 2 Years BUT did **not** attempt **30 units** a year for the first two years	2,877 (81%)	578	20.1%

Data-Driven Decision Making

Identifying Bottleneck Course →

2

Bottleneck Course for Graduation!

Data-Driven Decision Making for GI 2025
Graduation Bottleneck Courses

Business Administration Freshmen 4.5-Year Graduates, Fall 2009-2011 Cohorts
Upper-Division Core Requirement Completion by Semster of Completion

Course	Third-Year			Fourth-Year			Fifth Year
	5th Semester	6th Semester	Summer Session	7th Semester	8th Semester	Summer Session	9th Semester
BUAD301	35.3%	39.0%	4.1%	10.4%	1.2%	0.0%	0.0%
ECON315/320	8.5%	39.6%	3.0%	34.5%	6.0%	3.4%	1.3%
FIN320	27.8%	35.3%	2.9%	23.7%	4.1%	2.1%	0.4%
ISDS361A	26.8%	39.7%	4.6%	14.2%	3.3%	0.4%	0.0%
ISDS361B	6.7%	21.3%	4.2%	30.5%	27.2%	7.5%	2.1%
MGMT339	10.1%	36.3%	3.8%	39.2%	7.6%	2.1%	0.0%
MGMT340	5.4%	13.8%	5.4%	41.7%	27.5%	4.6%	1.7%
MKTG351	15.1%	39.7%	3.8%	30.1%	9.6%	0.4%	0.0%
MGMT449	0.0%	0.0%	0.4%	0.8%	16.3%	12.9%	69.6%

Data-Driven Decision Making

Identifying Degree ➔ Candidate

3

Completion Grant Incentives for Potential 4.5 / 2.5 Graduates

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Identifying Degree Candidate Using
Student Success Dashboard

Potential 4.5 / 2.5 Graduates → move the needle !

Underrepresented?	Units Earned	Units Attempted (current)	Current Term	Units Attempted (Future)	Future Term	Group Qual	Campus GPA	Cumulative GPA	Degree Candidate Term	Degree Checkout Consideration Term	Degree Checkout Consideration Status	Academic Standing	EOP Participation	Freshman Programs Participation	Degree Audit Program	Degree Audit Run Date
No	124.0	18.0	Fall 2017	16.00	Spring 2018	EI 3300-3399	3.10	3.10	Sum 2018	Spring 2017	Approved	Good Standing	No	No	BA MAAS	10/30/17 12:00:00 AM
No	86.0	15.0	Fall 2017	15.00	Spring 2018	EI 3700-3799	2.90	2.90		Spring 2018	Approved	Good Standing	No	No	BA MKTG	10/30/17 12:00:00 AM
No	93.0	15.0	Fall 2017	13.00	Spring 2018	EI 3300-3399	2.61	2.61	Spr 2018	Spring 2018	Approved	Good Standing	No	No	BA IBCH	10/30/17 12:00:00 AM
No	97.0	15.0	Fall 2017	15.00	Spring 2018	EI 3900 or more	3.65	3.65		Spring 2018	Approved	Good Standing	No	No	BA BUET	9/27/17 12:00:00 AM
Yes	92.0	18.0	Fall 2017	12.00	Spring 2018	EI 3800-3899	3.48	3.48		Spring 2018	Approved	Good Standing	No	No	BA BECN	9/26/17 12:00:00 AM
Yes	106.0	15.0	Fall 2017	15.00	Spring 2018	EI 3600-3699	3.26	3.34		Spring 2018	Approved	Good Standing	No	Yes	BA HRMN	9/26/17 12:00:00 AM
No	91.0	15.0	Fall 2017	15.00	Spring 2018	EI 3700-3799	2.90	2.90		Spring 2018	Approved	Good Standing	No	No	BA BAIS	10/30/17 12:00:00 AM

Completion Grant Incentives

- Incentives for Potential 4.5 / 2.5 Graduates
- Most grant receivers graduated by the end of summer 2017
- Winter 2018 is open for potential 4.5 / 2.5 graduates, particularly those who entered as first-time freshmen in fall 2014

Data-Driven Decision Making

SB 1440 ADT (Associate Degree for Transfer) Students ➜

4

SB 1440 : How impactful ?

SB1440 ADT Students' Progression
## (ADT: Associate Degree Transfer)

Cohort	All Transfers			SB1440 New CC Transfers		
	N	2-Yr Grad Rate	4-Yr Grad Rate	N	2-Yr Grad Rate	4-Yr Grad Rate
fall 2012	4343	29.6%	74.4%	22	53.8%	92.3%
fall 2013	4752	32.0%		158	49.4%	
fall 2014	3973	36.4%		453	44.7%	
fall 2015	3991			752		

Data-Driven Decision Making

5

Dashboard

Dashboards in CSU Fullerton
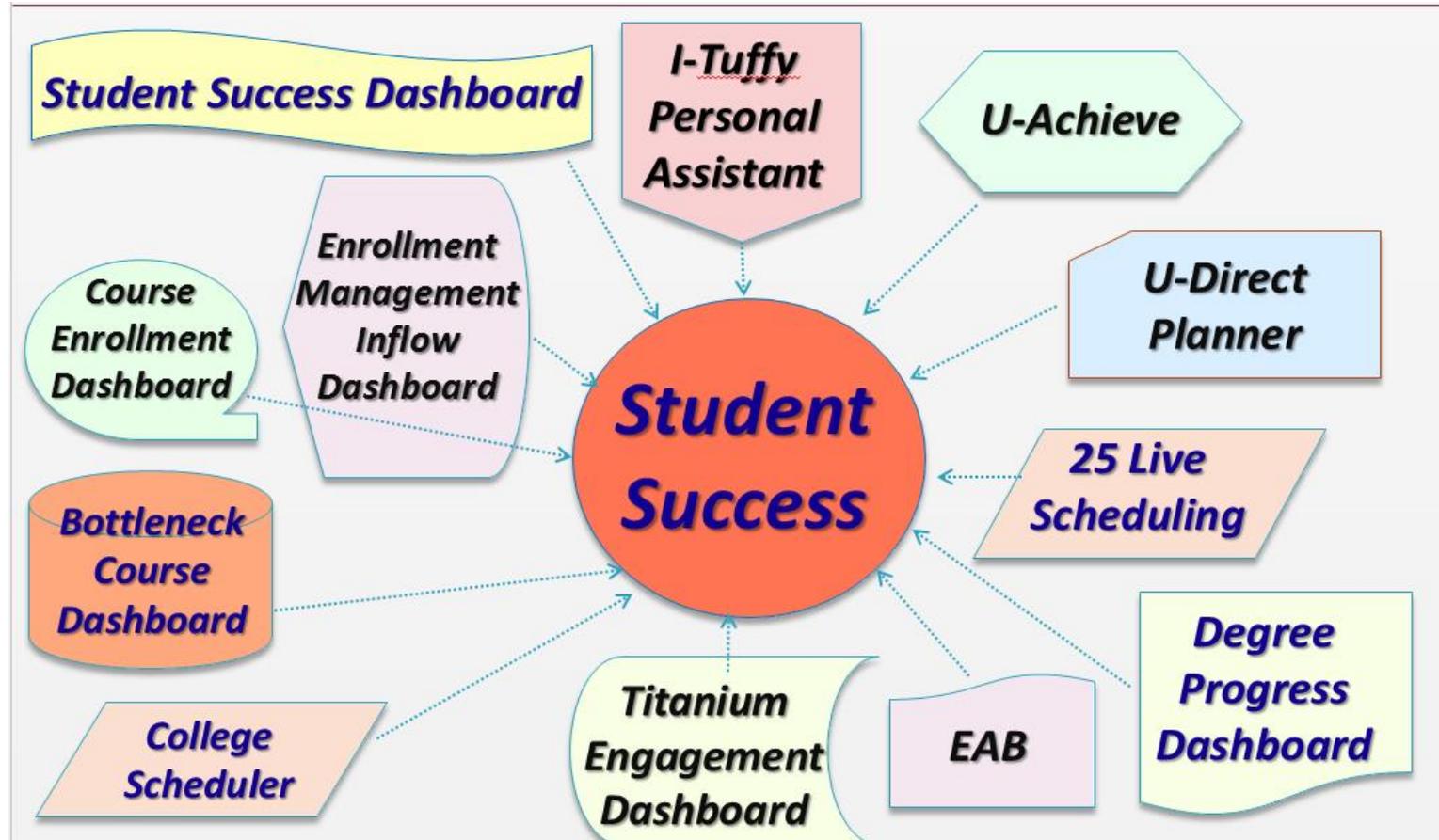
Data-Driven Decision Making

- **Dashboard** (Tableau Server Pilot)
  - Student Success Dashboard
  - Enrollment Management Dashboard
  - College / Department Snapshot Dashboard
  - Supplemental Instruction Dashboard
  - Grade Distribution Dashboard

2017-2018 : Restructured GI 2025 Advisory Group

- Bottlenecks
- Data Use, IT Innovation, Assessment
- Strategic Enrollment Services
- Academic Preparation
- First Year Experience
- Wellness and Belonging
- Student Success Teams/Advisement
- High Impact Practices (HIPs)

Q & A

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Appendix (Thoughts)

30 Units Takers: Men vs. Women
First-Time Freshmen 2011-2013 Cohort
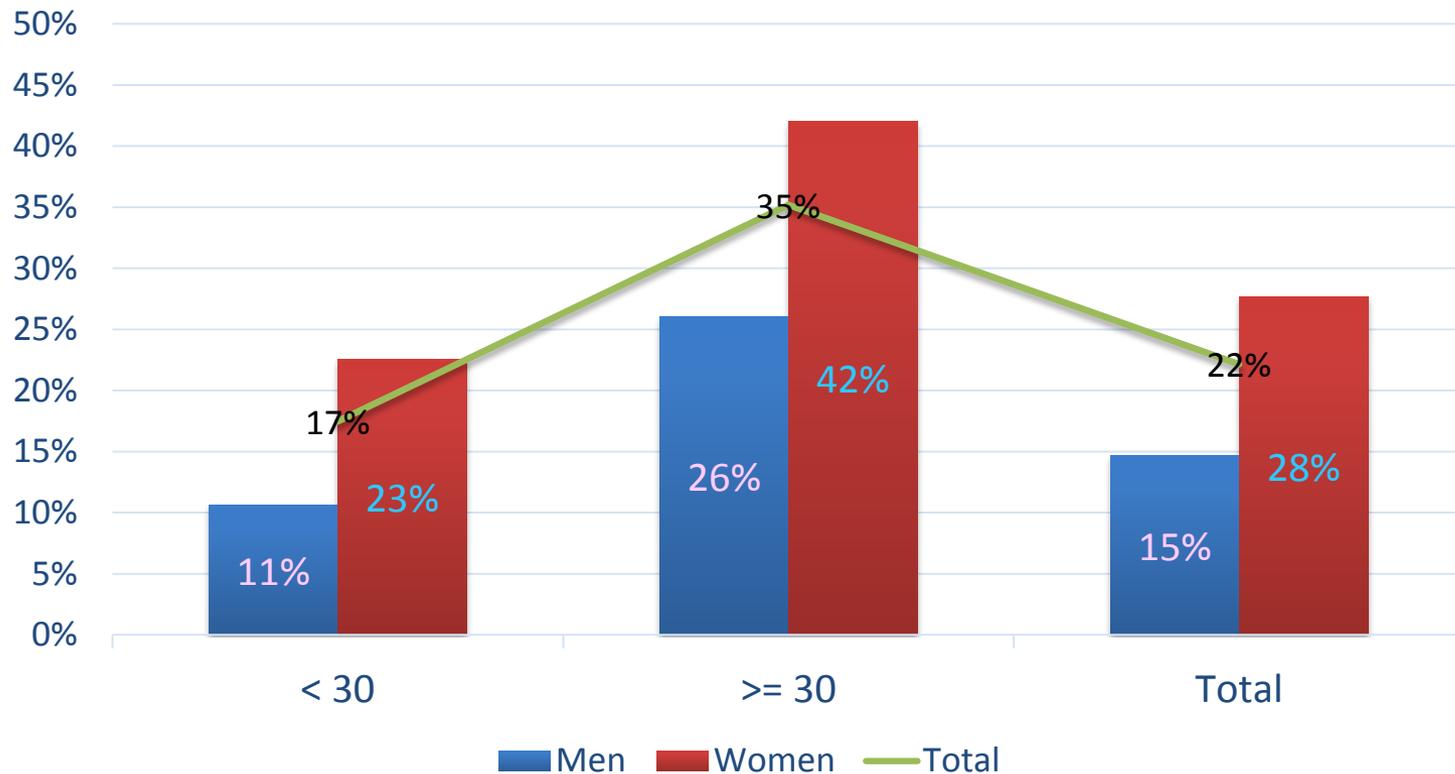
4-Year Grad Rates

30 Units Takers: Men vs. Women
First-Time Freshmen 2011-2013 Cohort

Graduation Rates

1st Yr Units	Men	Women	Total
< 30	11%	23%	17%
>= 30	26%	42%	35%
Total	15%	28%	22%

- Men: increase by 15 percentage point, increase by 118 percent
- Women: increase by 19 percentage point, increase by 83 percent

30 Units Takers: Men vs. Women
First-Time Freshmen 2011-2013 Cohort

Graduation Rates Ratio (GRR)

1st Yr Units	Men	Women
< 30	1 (reference)	GRR = 2.09
>= 30	1 (reference)	GRR = 1.62

30 Units Takers: Men vs. Women
First-Time Freshmen 2011-2013 Cohort

Graduation Rates Ratio (GRR)

1st Yr Units	Men	Women
< 30	1 (reference)	GRR = 2.09
>= 30	GRR = 2.36	GRR = 3.82