MAKING A DIFFERENCE AND HOW WE KNOW

A Longitudinal Analysis of Fall 2009 FTFTF Cohort Graduation at Fresno State

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Content

- Introduction
- Research Design
- Findings
- Discussion

CSU Graduation Initiative 2015

- "Raising Overall Achievement and Closing Gaps: Delivering the Access to Excellence Goals" project.

  In Fall 2009, CO launch a Graduation Initiative involving all 23 CSU campuses with the aim of improving graduation rates and closing the achievement gaps among students.

- The initiative is expected to raise six-year graduation rates by eight percentage points by 2015 (from 46 percent to 54 percent), plus cut in half the existing gap in degree attainment by CSU's underrepresented students

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Fresno State Graduation Initiative 2015

In response to the system "Raising Overall Achievement and Closing Gaps: Delivering the Access to Excellence Goals" project, Fresno State launched its own graduation initiative:

- By 2015, raise the six year graduation rate for first time full time freshmen by 6 points (from 48% to 54%).
- It will also halve the graduation gap between under-represented minorities and others by half.

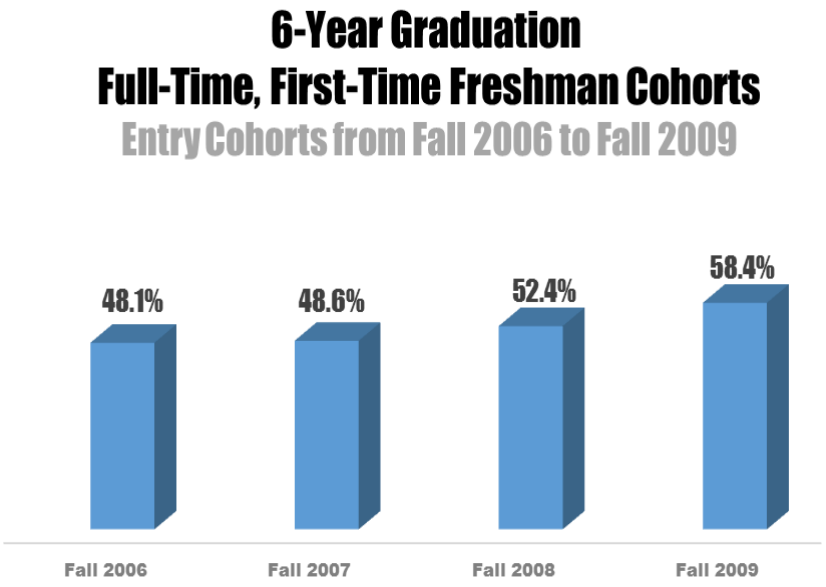
Six years later at Fresno State

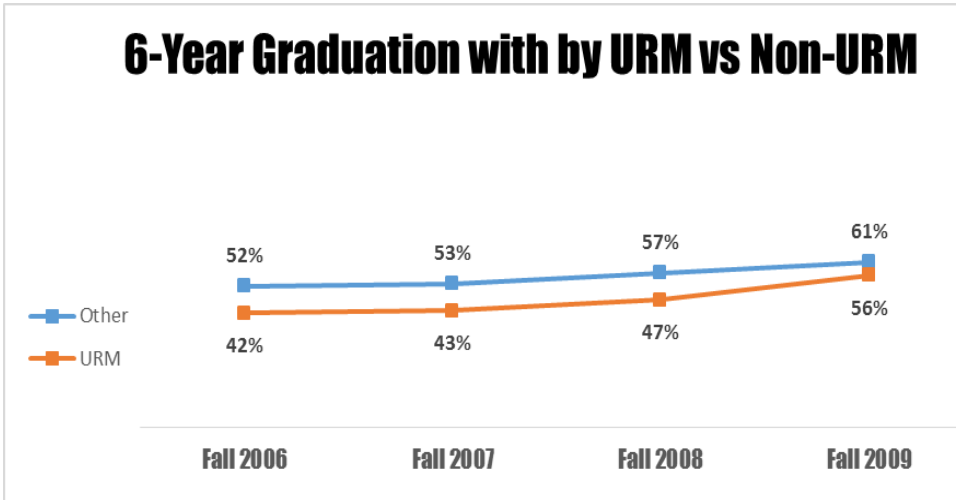
6-Year Graduation Rate Achievement

Fresno State realized a 6-year graduation rate achievement of 58.4% for the 2009 first-time freshman (FTFTF) cohort.

Reducing the Achievement Gap

Fresno State achieved a reduction in the achievement gap for underrepresented minority students. The achievement gap decreased from 10.2 percentage points (for 2006 cohort) to 5.1 percentage points (for 2009 cohort).





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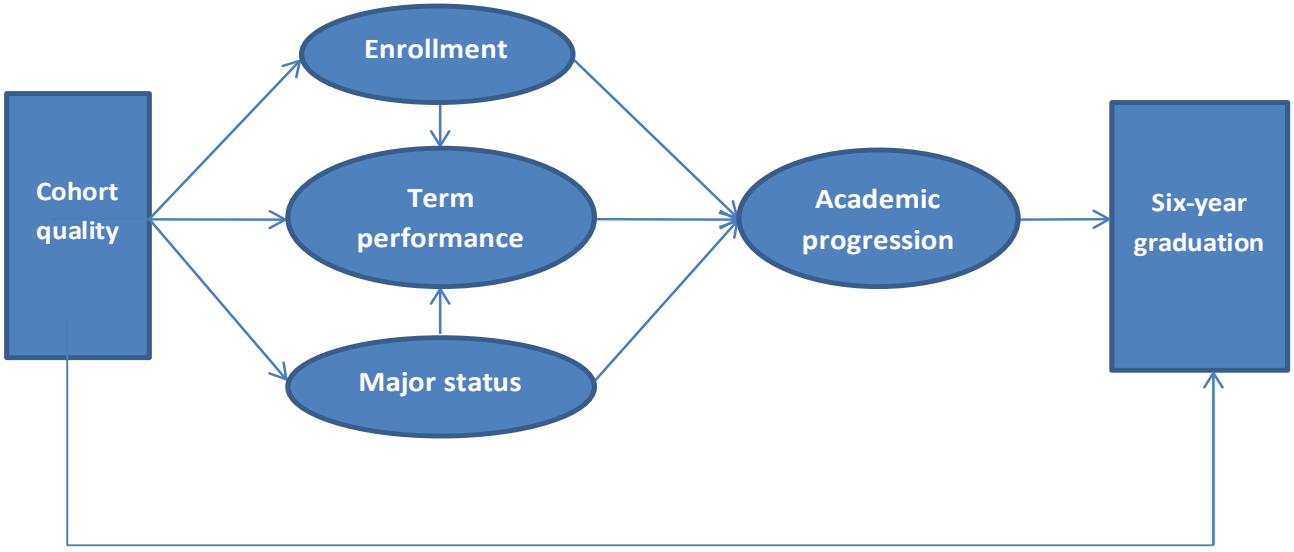
Purpose of the study

What happened to the Fall 2009 cohort so that it had the highest graduation rate in Fresno State history?

A Conceptual Framework



Fall 2009 FTFTF cohort (N=2620, six-year graduation rate=58.4%)

Fall 2003 FTFTF cohort (N=2486, six-year graduation rate=47.7%)

Undergraduate education pathway (6 years or 12 terms)

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Research design

Research plan

	Step 1: Identifying changes across terms between two cohorts		Step 2: Evaluating the importance of the changes	Step 3: Linking to institutional efforts	
	Changes	Timing	Relative importance	Institutional efforts	IR roles
1. Cohort quality (entry characteristics)					
Demographics Academic preparation					
2. Cohort enrollment					
Stopout and enrolled terms Enrolled % Left % Term units enrolled Full-time status					
3. Term performance					
Term GPA Term units earned					
4. Major status					
Major declaration Major change Double majors/Minors Major type (STEM vs. Non-STEM)					
5. Academic progress					
Cumulative units earned_EOT Cumulative GPA_EOT % of on-tracking % of sophomores, juniors, and seniors					

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Step 1:

Identifying changes across terms between two cohorts (longitudinal comparisons of two cohorts using Tableau dashboards)

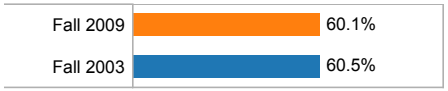
Longitudinal comparisons of two cohorts

Cohort quality	Graduation	Enrollment I:	Enrollment II:	Term performance I:	Term performance II:	Major status I:

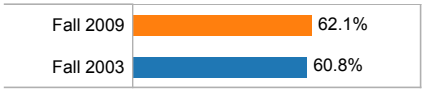
Cohort Fall 2009 Fall 2003

Demographics

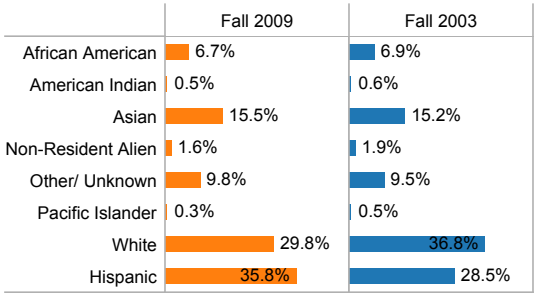
Female (%)



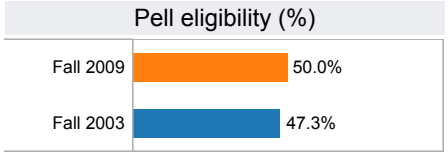
FGS (%)



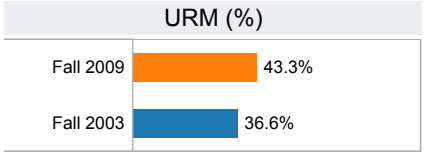
Ethnicity (%)



Pell eligibility (%)

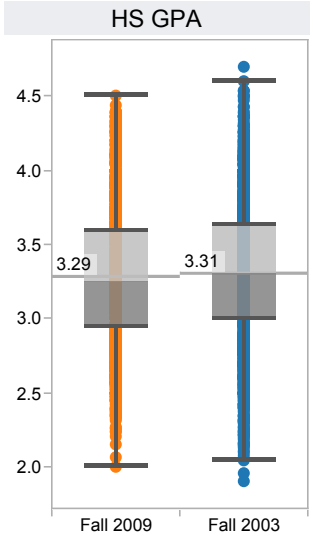


URM (%)

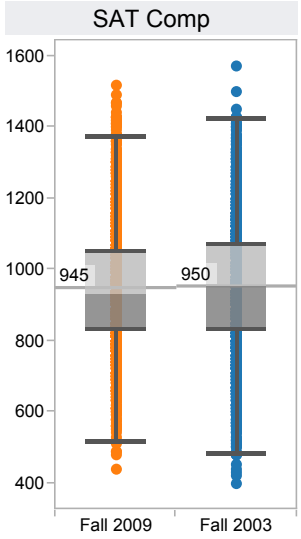


Academic preparation

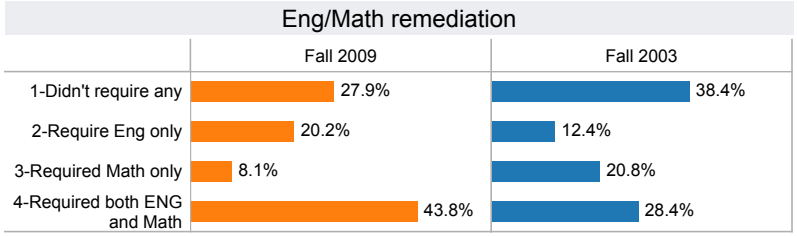
HS GPA



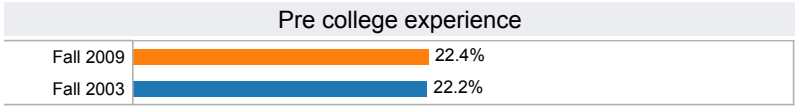
SAT Comp



Eng/Math remediation



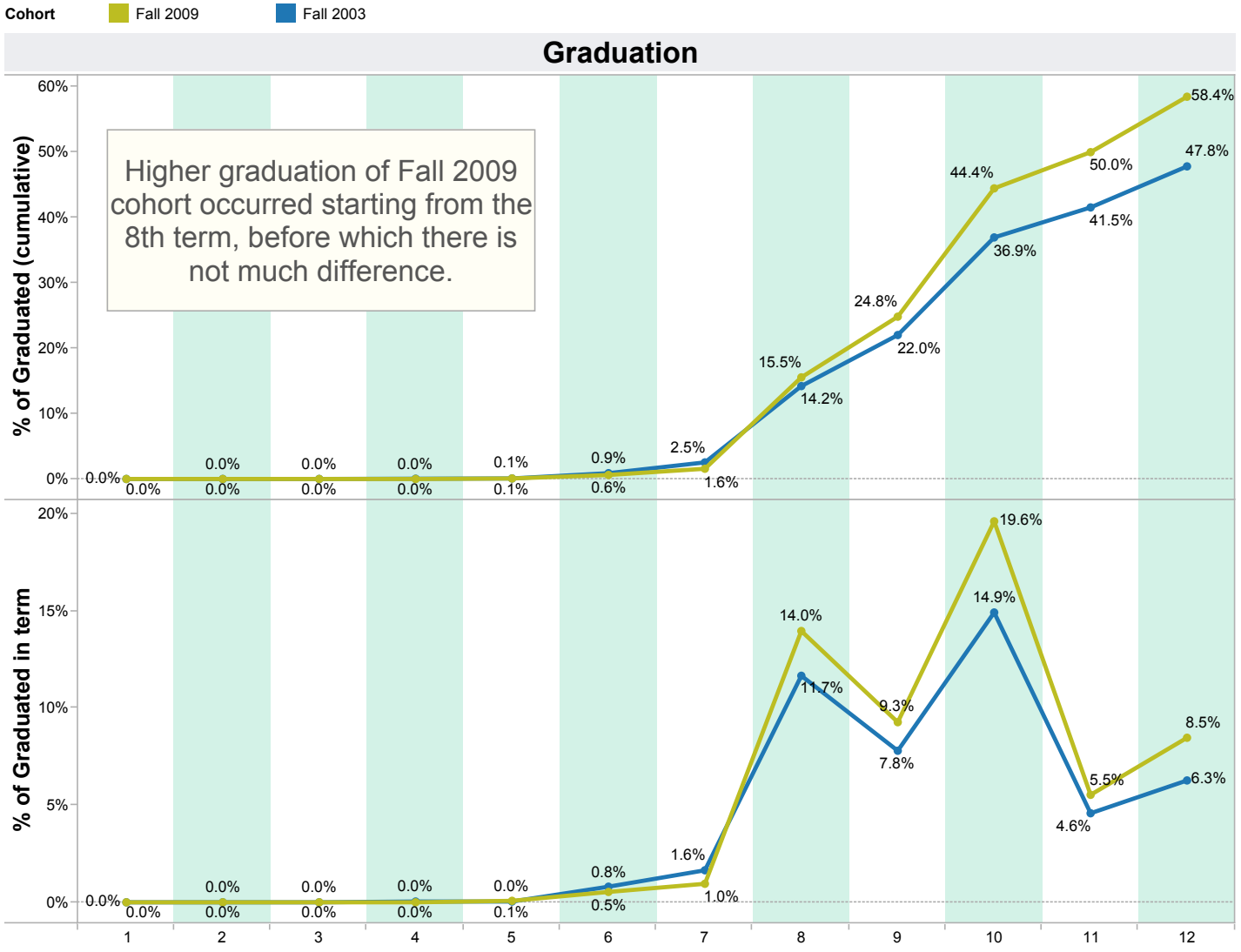
Pre college experience



Fall 2009 cohort is more challenging than Fall 2003 cohort.

Longitudinal comparisons of two cohorts

Cohort quality	**Graduation**	Enrollment I:	Enrollment II:	Term performance I:	Term performance II:	Major status I:



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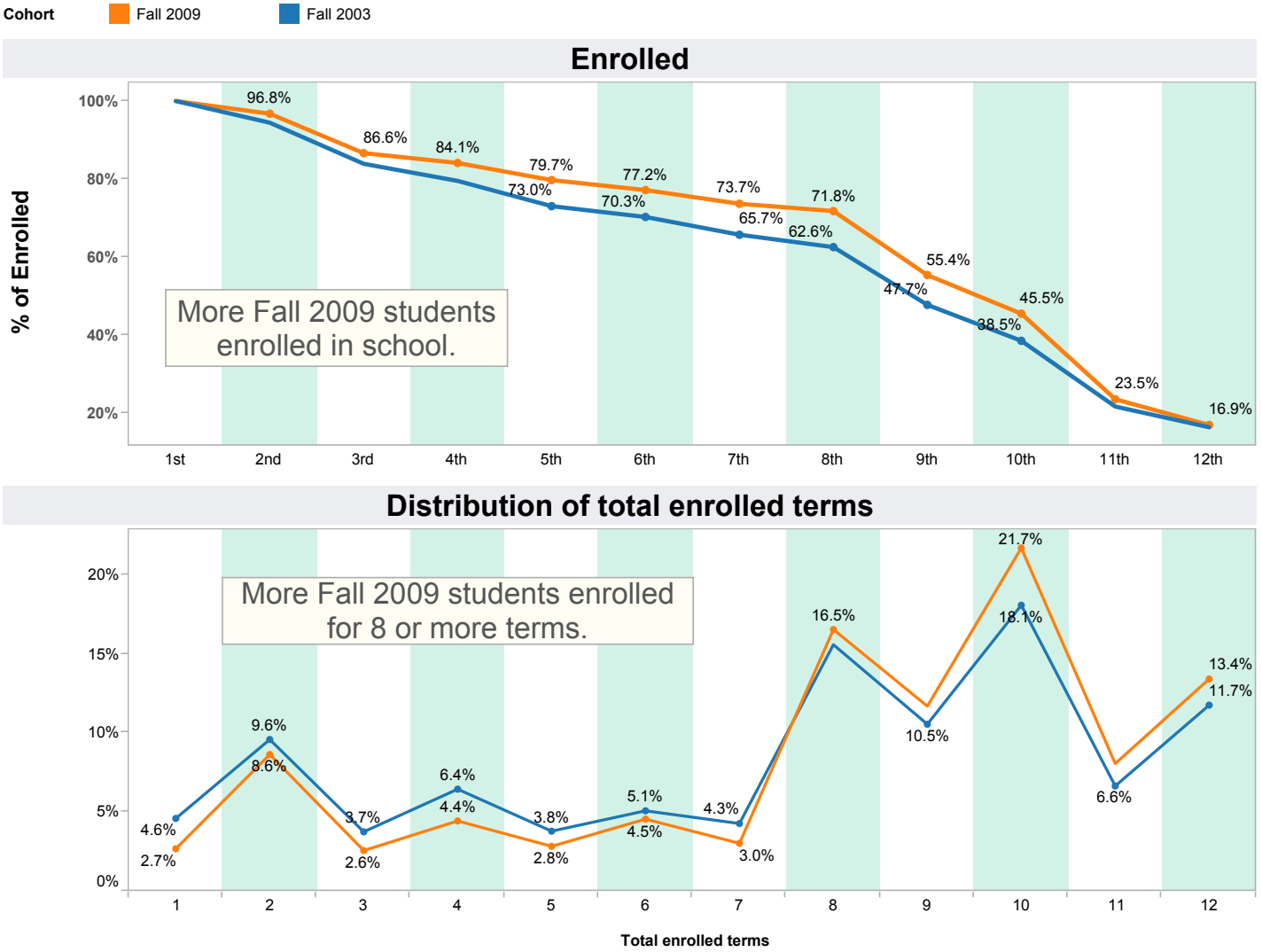

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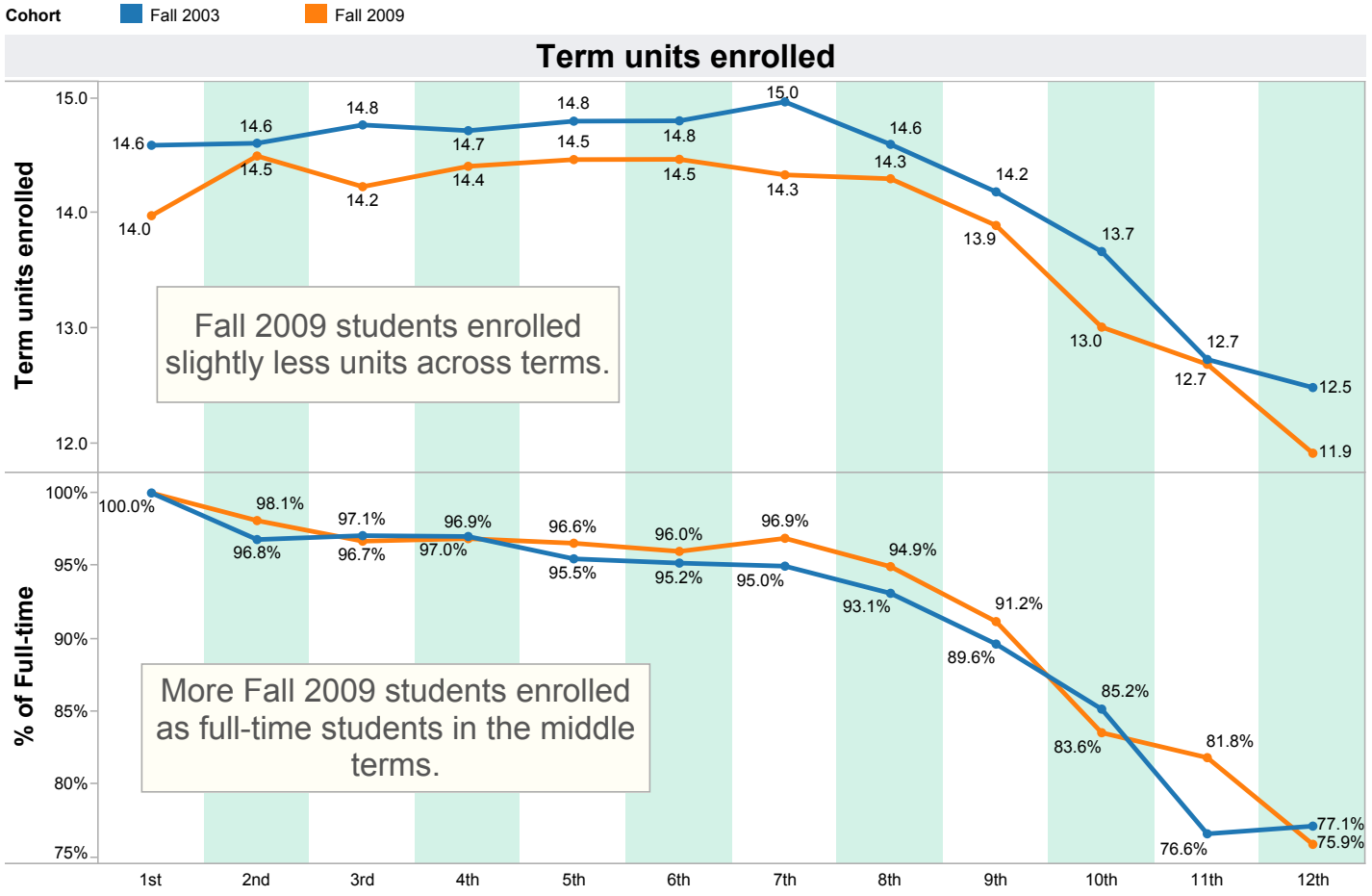
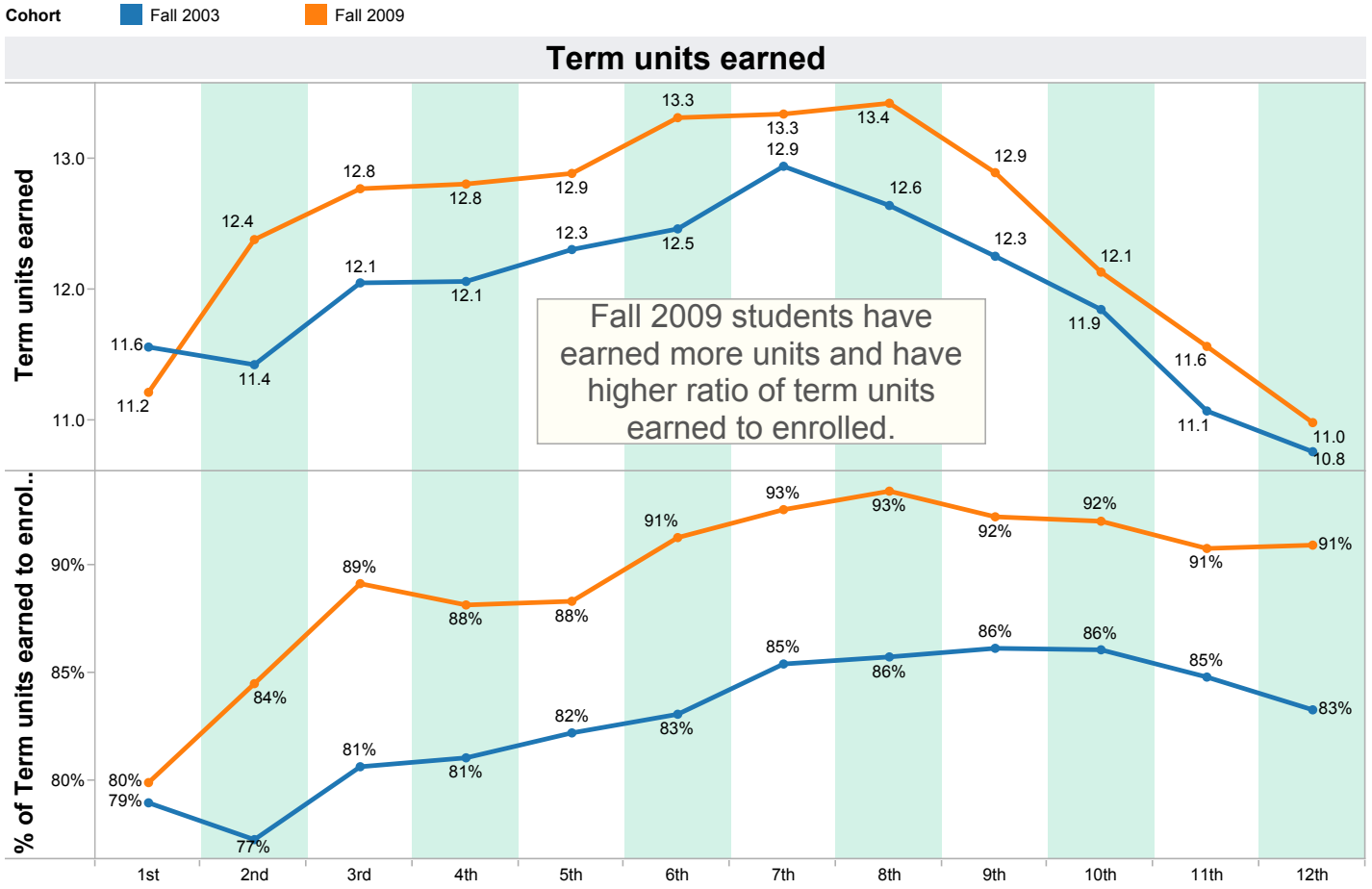


Enrolled Headcount by terms

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Fall 2009	2,620	2,535	2,270	2,204	2,089	2,022	1,930	1,881	1,451	1,192	617	444
Fall 2003	2,486	2,348	2,086	1,977	1,816	1,747	1,634	1,555	1,187	958	539	407

Longitudinal comparisons of two cohorts

Graduation	Enrollment I:	Enrollment II:	**Term performance I:**	Term performance II:	Major status I:	Major status II:



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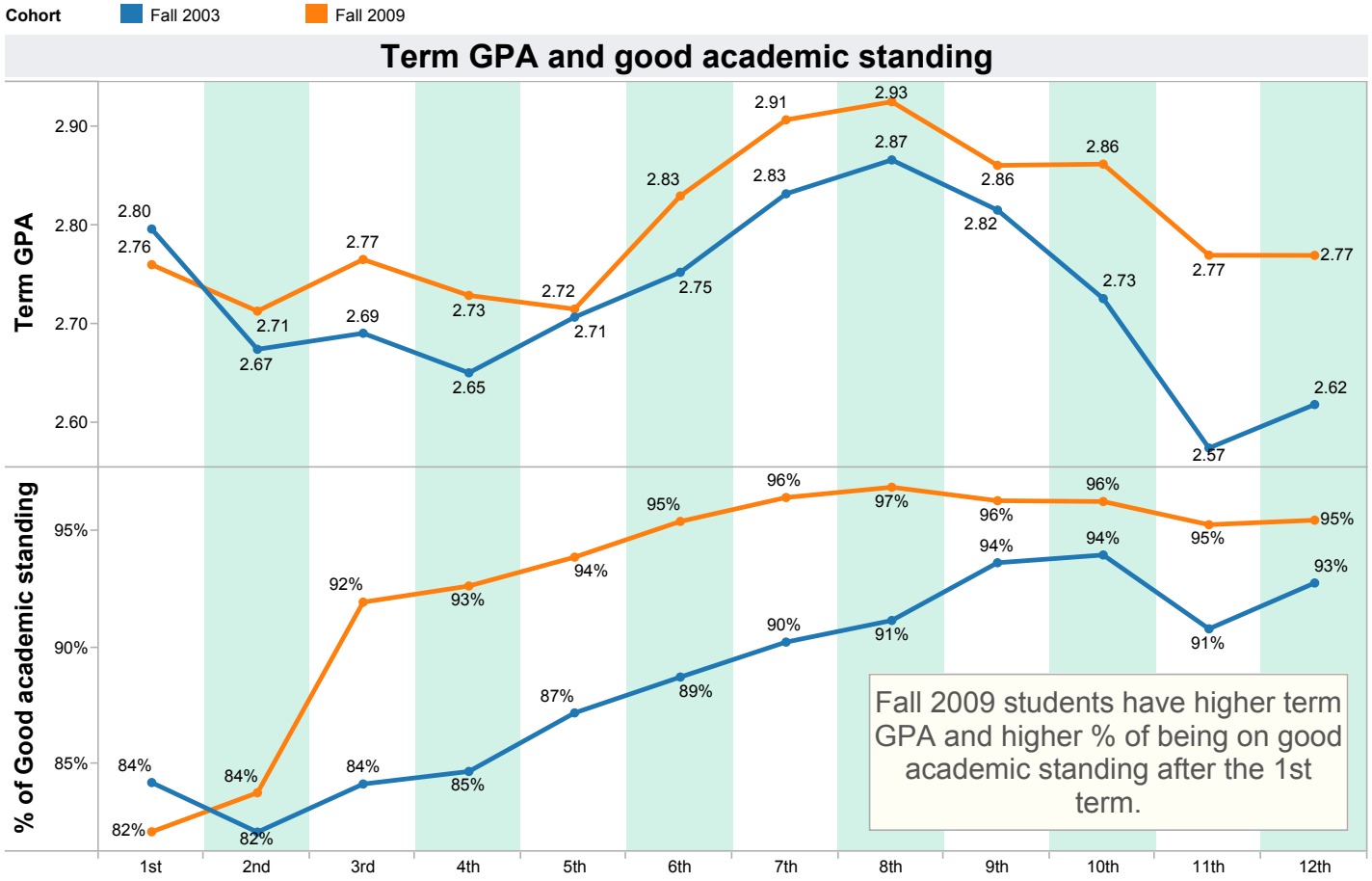
Longitudinal comparisons of two cohorts

Enrollment I:	Enrollment II:	Term performance I:	**Term performance II:**	Major status I:	Major status II:	Academic progress I:



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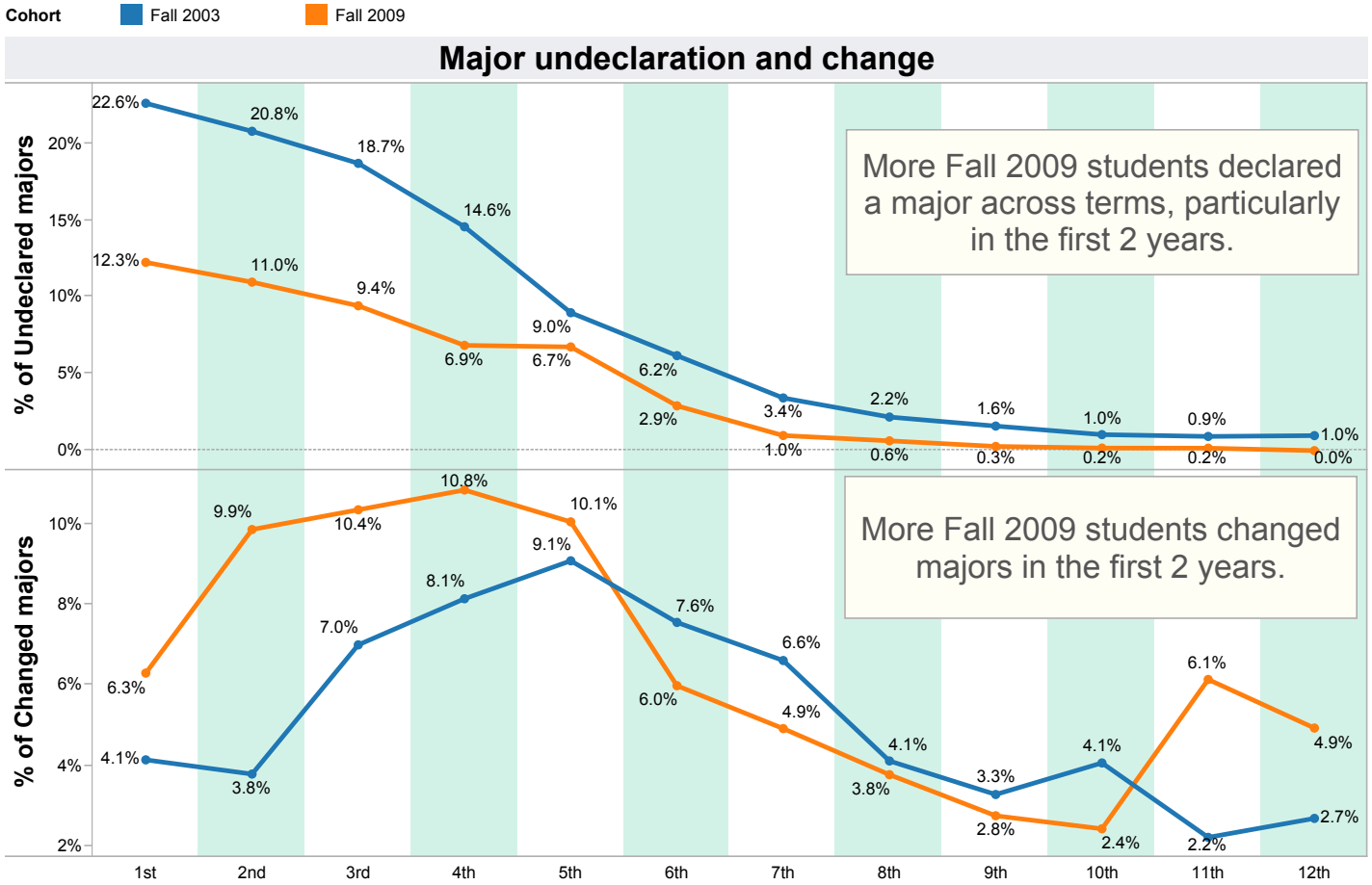
Longitudinal comparisons of two cohorts

Enrollment II:	Term performance I:	Term performance II:	**Major status I:**	Major status II:	Academic progress I:	Academic progress II:



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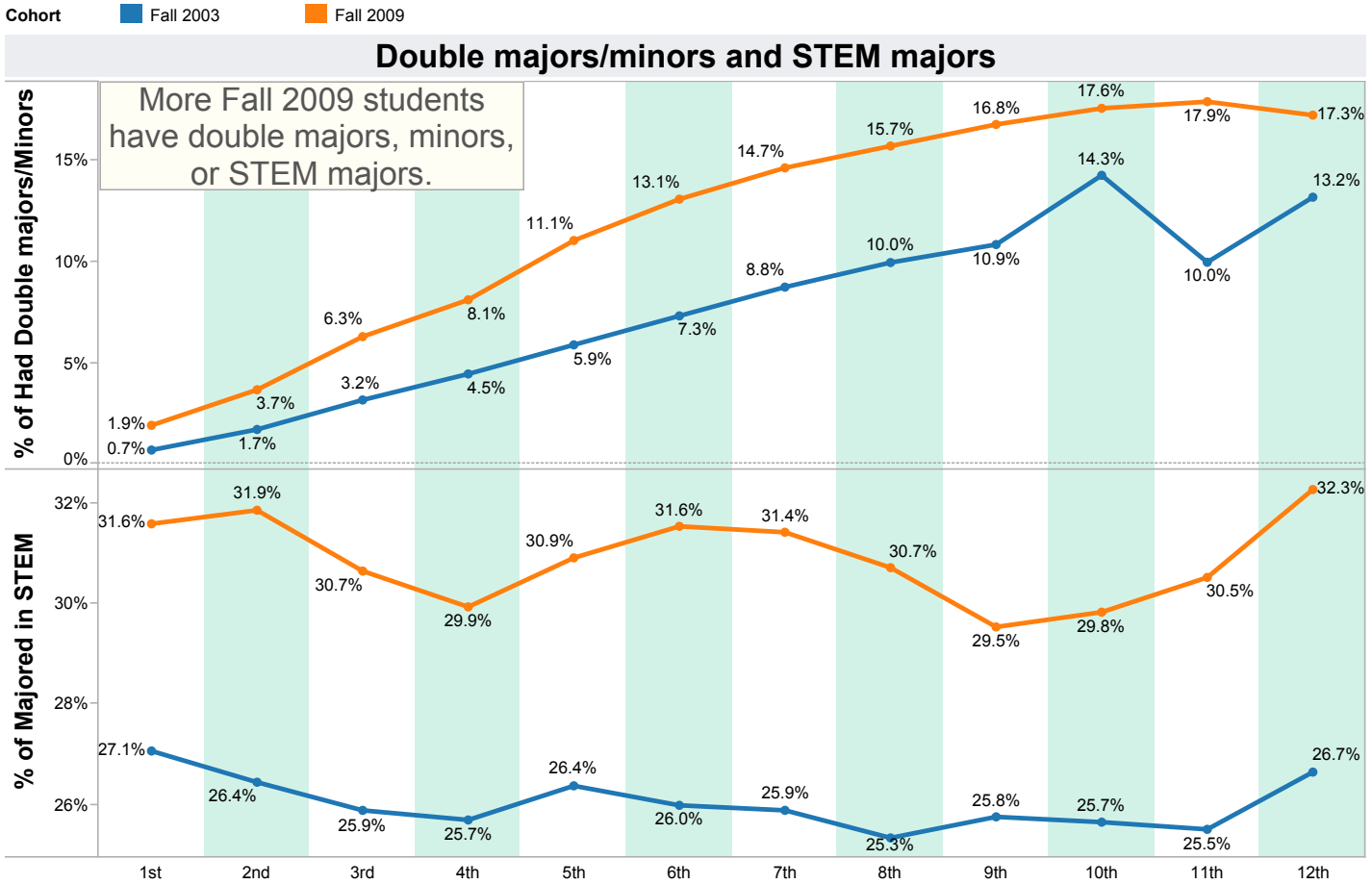

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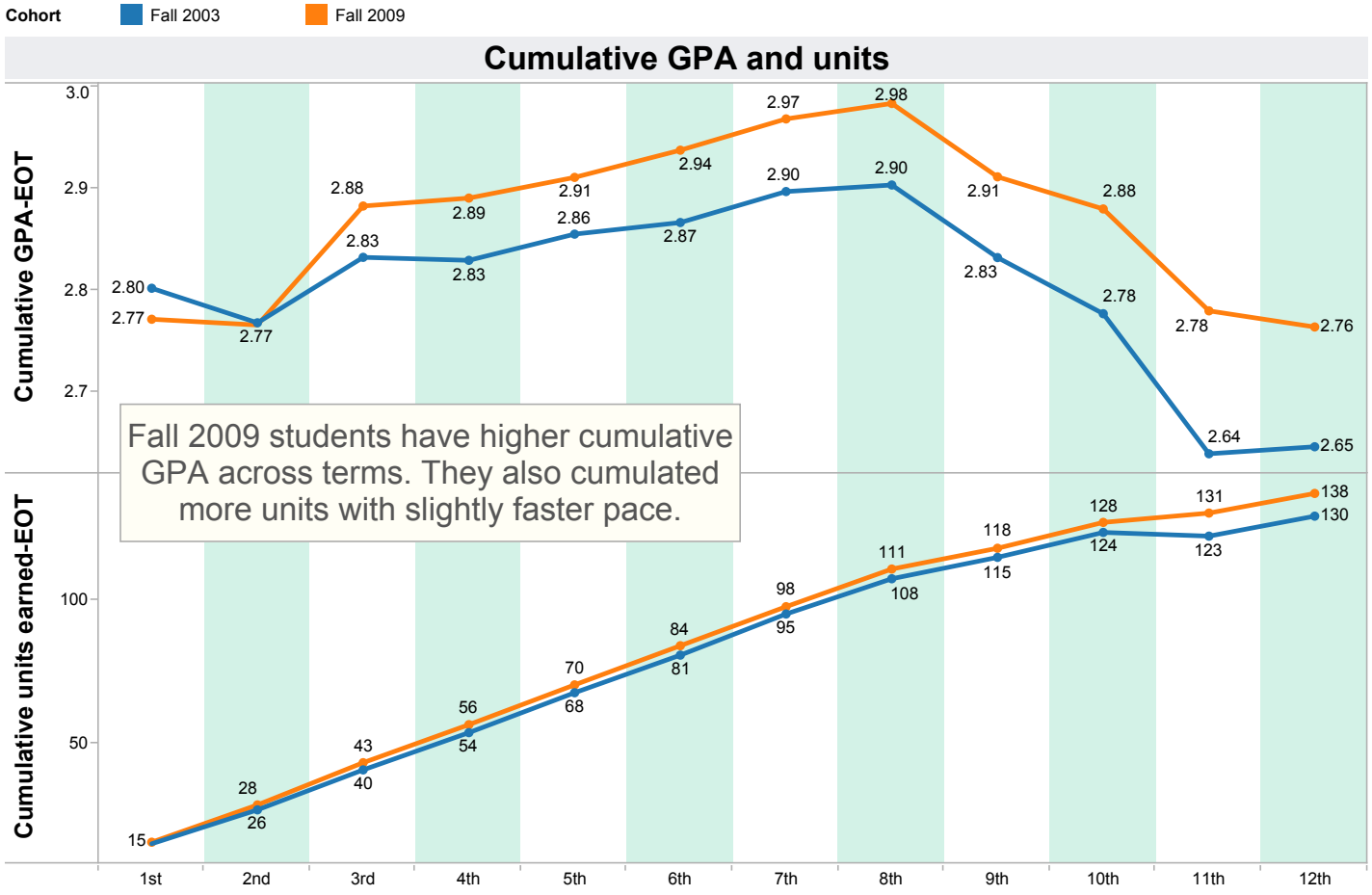

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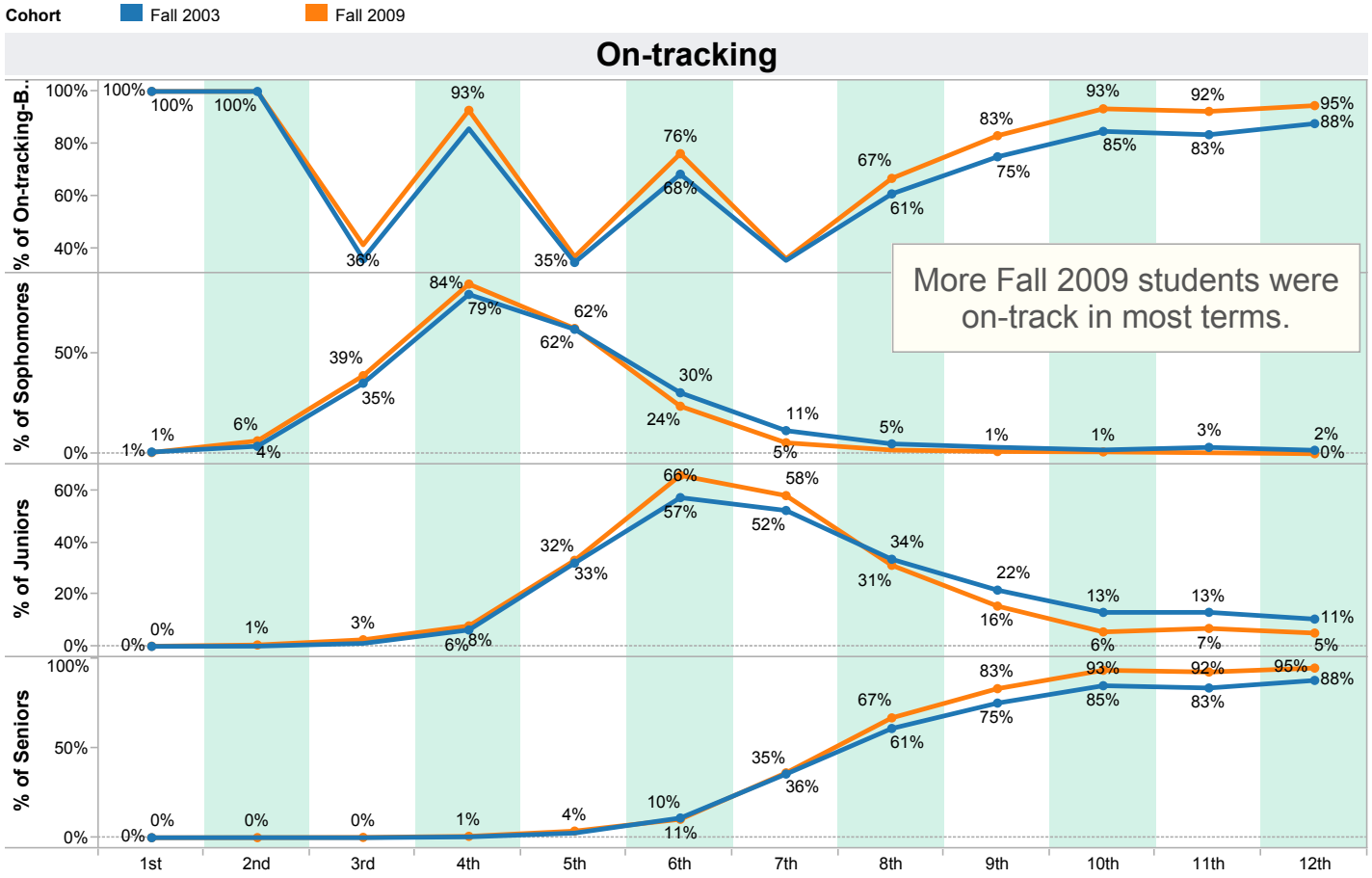

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Longitudinal comparisons of two cohorts

Comparison summary

Cohort quality:
Fall 2009 cohort is more challenging than Fall 2003 cohort.
More FGS, Pell eligible, URM (Hispanic). Slightly lower HS GPA and SAT scores. More requiring Eng/Math remediation.

Enrollment:
More Fall 2009 students enrolled in school. However, they enrolled slightly less units across terms.
More Fall 2009 students enrolled as full-time students in the middle terms.

Term performance:
Fall 2009 students have earned more units and have higher ratio of term units earned to enrolled.
Fall 2009 students have higher term GPA and higher % of being on good academic standing after the 1st term.

Major status:
More Fall 2009 students declared a major across terms, particularly in the first 2 years.
More Fall 2009 students changed majors in the first 2 years.
More Fall 2009 students have double majors, minors, or STEM majors.

Academic progress:
Fall 2009 students have higher cumulative GPA across terms. They also cumulated more units with slightly faster pace.
More Fall 2009 students were on-track in most terms.

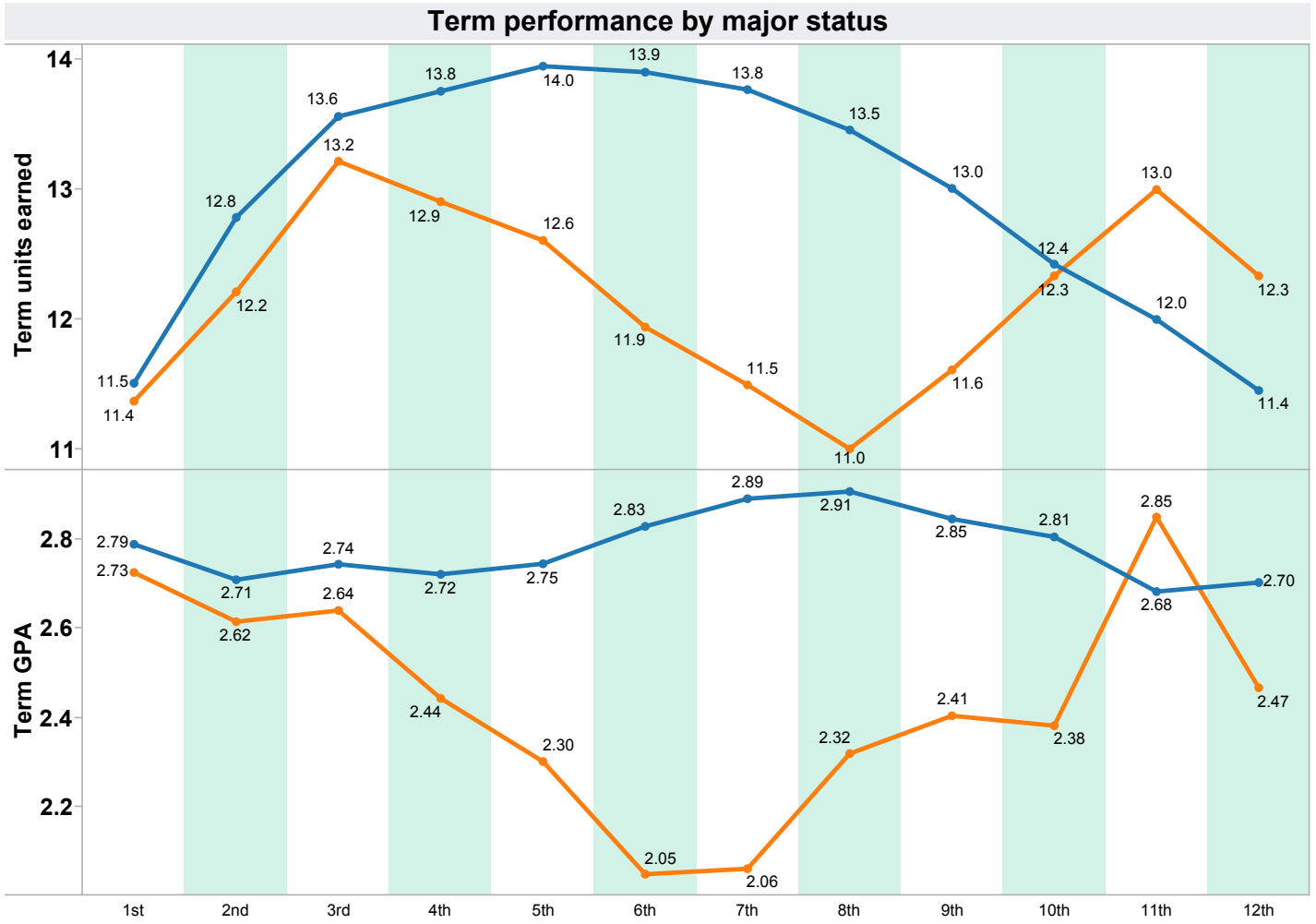
Graduation:
Higher graduation of Fall 2009 cohort occurred starting from the 8th term, before which there is no much differences.

Longitudinal comparisons of two cohorts

Term pe rforma..	Major status I:	Major status II:	Academic progress I:	Academic progress II:	Summary	**Major status and performance**

Major status
Major undeclared

Color
No
Yes

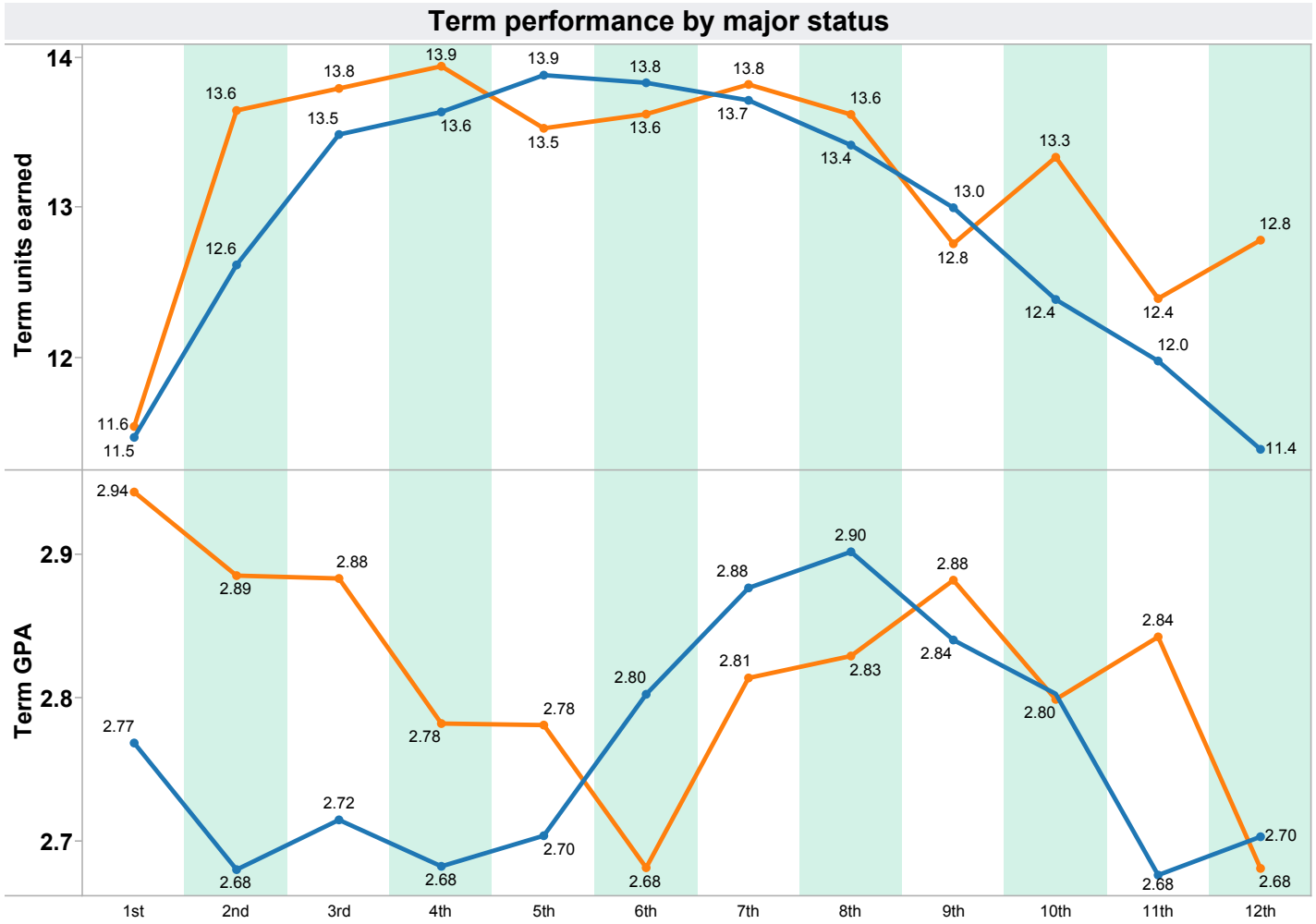


Longitudinal comparisons of two cohorts

Term pe rforma..	Major status I:	Major status II:	Academic progress I:	Academic progress II:	Summary	**Major status and performance**

Major status
Major changed

Color
No
Yes

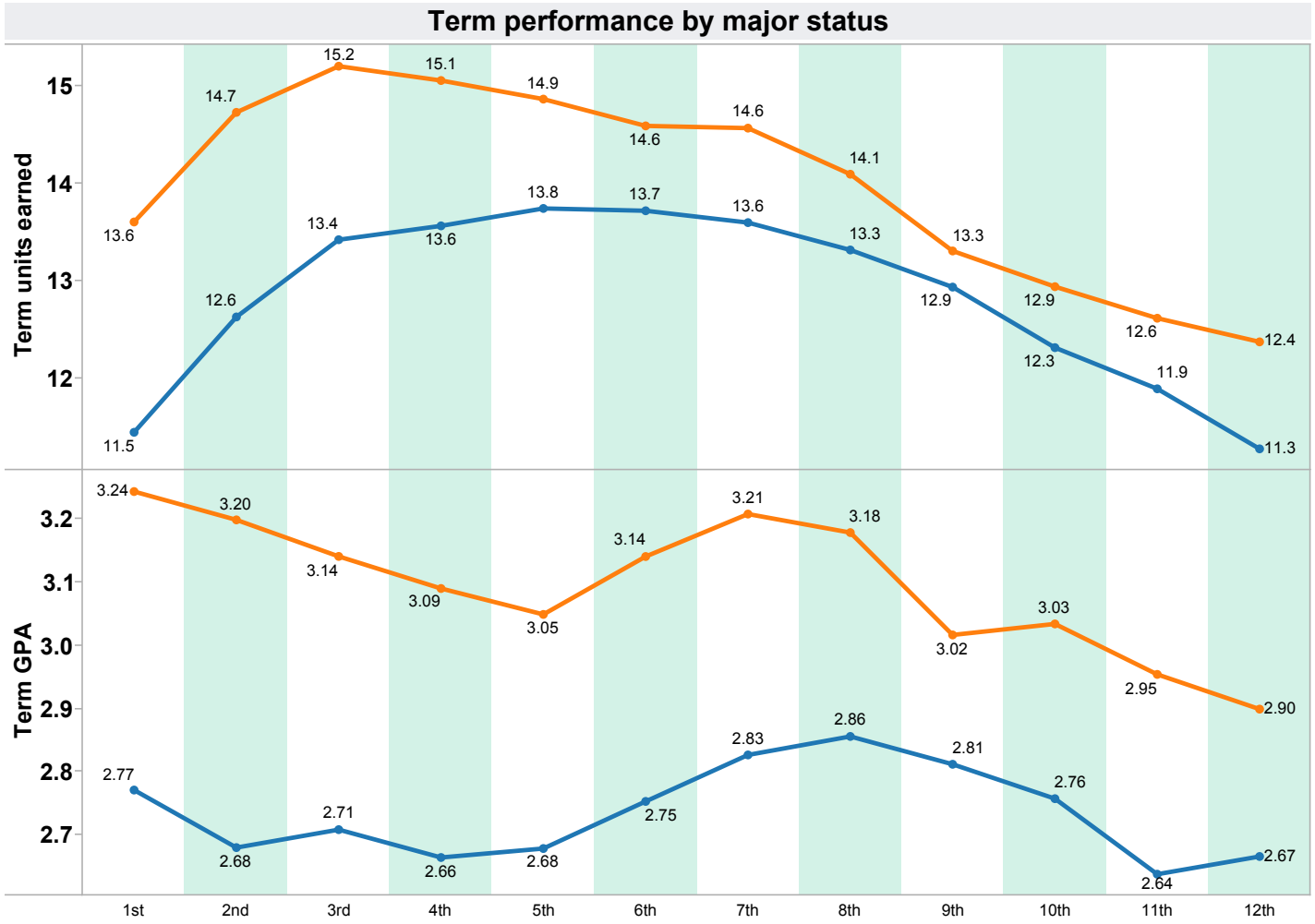


Longitudinal comparisons of two cohorts

Term pe rforma..	Major status I:	Major status II:	Academic progress I:	Academic progress II:	Summary	**Major status and performance**

Major status
Double majors/minors

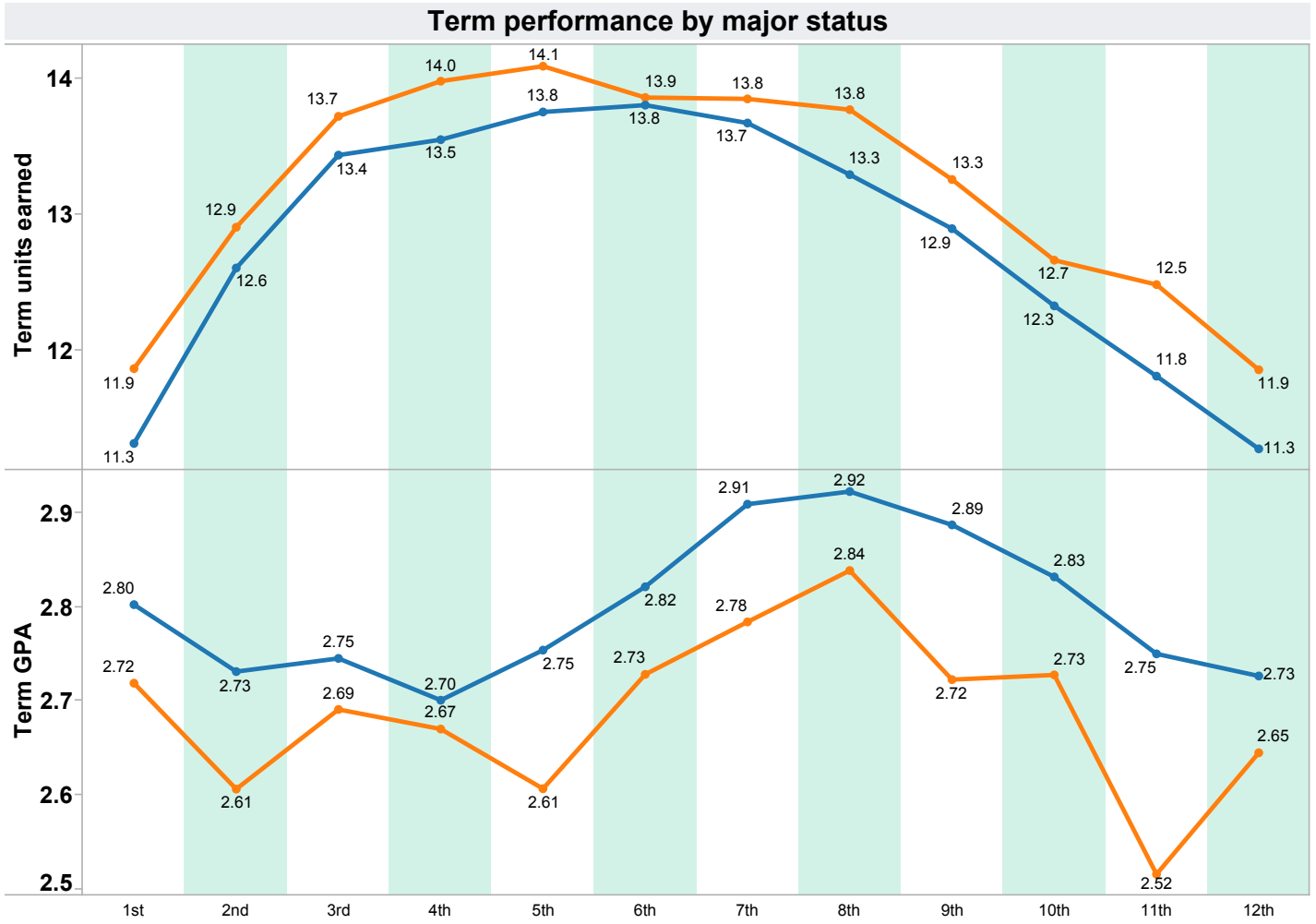
Color
No
Yes



Longitudinal comparisons of two cohorts

Major status
STEM majors

Color
No
Yes



Step 2:

Evaluating the importance of the changes

Factors affecting six-year graduation

	Base model			Fulll model				Model 10 (without term performance)			
	B	Sig.	Exp(B)	B	Wald	Sig.	Exp(B)	B	Wald	Sig.	Exp(B)
Cohort (Fall 2009 to Fall 2003)	**.424**	**.000**	**1.528**	**-0.138**	**1.421**	**0.233**	**0.871**	**0.756**	**79.835**	**0.000**	**2.131**
Cohort quality											
Gender (Female to Male)				0.209	3.830	0.050	1.233	0.340	16.705	0.000	1.406
URM				0.192	2.959	0.085	1.212	-0.115	1.822	0.177	0.891
FGS				-0.054	0.215	0.643	0.948	-0.181	4.003	0.045	0.835
Pell eligibility				-0.150	1.629	0.202	0.861	-0.382	17.805	0.000	0.683
HS GPA				-0.278	3.881	0.049	0.757	1.063	113.055	0.000	2.894
Eng remediation				-0.066	0.322	0.570	0.936	-0.136	2.267	0.132	0.873
Math remediation				0.417	12.441	0.000	1.517	0.080	0.801	0.371	1.083
Pre-college experience				0.517	14.704	0.000	1.677	0.347	12.439	0.000	1.415
Enrollment											
Total # of enrolled terms				0.565	99.212	0.000	1.760	0.471	115.428	0.000	1.601
# of Full-time terms after the 4th term				0.189	9.525	0.002	1.208	0.094	3.703	0.054	1.098
Term units enrolled				-0.299	21.476	0.000	0.742	0.683	438.845	0.000	1.981
Major status											
Major undeclared in first 4 terms				-0.078	0.267	0.605	0.925	-0.007	0.003	0.954	0.993
Major undeclared after the 4th term				-0.306	1.950	0.163	0.736	-0.513	9.057	0.003	0.598
Major changed in first 4 terms				0.098	0.671	0.413	1.103	0.288	9.426	0.002	1.334
Major changed after the 4th term				-0.107	0.785	0.376	0.899	-0.077	0.623	0.430	0.926
Double majors/minors				-0.439	10.063	0.002	0.645	0.159	2.026	0.155	1.173
STEM majors				-0.217	4.177	0.041	0.805	-0.403	23.808	0.000	0.668
Term performance											
Term units earned				1.160	303.278	0.000	3.190				
Term GPA				1.132	51.146	0.000	3.103				
Academic progress											
% of on-tracking terms				-0.332	0.893	0.345	0.718				
Constant	-0.068	.090	0.934	-18.002	301.619	0.000	0.000	-17.607	592.423	0.000	0.000
Nagelkerke R Square	0.015			0.771				0.575			

Note: The calculated odds ration based on the data is **1.539**.

Step 2:

Evaluating the importance of the changes

Factors affecting six-year graduation

	Base model			Fulll model				Model 10 (without term performance)			
	B	Sig.	Exp(B)	B	Wald	Sig.	Exp(B)	B	Wald	Sig.	Exp(B)
Cohort (Fall 2009 to Fall 2003)	**.424**	**.000**	**1.528**	**-0.138**	**1.421**	**0.233**	**0.871**	**0.756**	**79.835**	**0.000**	**2.131**
Cohort quality											
Gender (Female to Male)				0.209	3.830	0.050	1.233	0.340	16.705	0.000	1.406
URM				0.192	2.959	0.085	1.212	-0.115	1.822	0.177	0.891
FGS				-0.054	0.215	0.643	0.948	-0.181	4.003	0.045	0.835
Pell eligibility				-0.150	1.629	0.202	0.861	-0.382	17.805	0.000	0.683
HS GPA				-0.278	3.881	0.049	0.757	1.063	113.055	0.000	2.894
Eng remediation				-0.066	0.322	0.570	0.936	-0.136	2.267	0.132	0.873
Math remediation				0.417	12.441	0.000	1.517	0.080	0.801	0.371	1.083
Pre-college experience				0.517	14.704	0.000	1.677	0.347	12.439	0.000	1.415
Enrollment											
Total # of enrolled terms				0.565	99.212	0.000	1.760	0.471	115.428	0.000	1.601
# of Full-time terms after the 4th term				0.189	9.525	0.002	1.208	0.094	3.703	0.054	1.098
Term units enrolled				-0.299	21.476	0.000	0.742	0.683	438.845	0.000	1.981
Major status											
Major undeclared in first 4 terms				-0.078	0.267	0.605	0.925	-0.007	0.003	0.954	0.993
Major undeclared after the 4th term				-0.306	1.950	0.163	0.736	-0.513	9.057	0.003	0.598
Major changed in first 4 terms				0.098	0.671	0.413	1.103	0.288	9.426	0.002	1.334
Major changed after the 4th term				-0.107	0.785	0.376	0.899	-0.077	0.623	0.430	0.926
Double majors/minors				-0.439	10.063	0.002	0.645	0.159	2.026	0.155	1.173
STEM majors				-0.217	4.177	0.041	0.805	-0.403	23.808	0.000	0.668
Term performance											
Term units earned				1.160	303.278	0.000	3.190				
Term GPA				1.132	51.146	0.000	3.103				
Academic progress											
% of on-tracking terms				-0.332	0.893	0.345	0.718				
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Nagelkerke R Square	0.015			0.771				0.575			

Note: The calculated odds ration based on the data is **1.539**.

The most significant factors:

- Term units earned
- # of enrolled terms
- Term GPA

Without term performance

- Term units enrolled
- # of enrolled terms
- HS GPA

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Step 2:

Evaluating the importance of the changes

Changes in estimated odds ratio of graduation (Fall 2009 to Fall 2003)

	Factors added*	Estimated odds ratio (Fall 2009 to Fall 2003)			Change in odds ratio	
		B	Sig.	Exp(B)	Change value	Change %
Base model		.424	.000	1.528	-0.658	-43%
Entering cohort quality as one block	***Gender***, URM, ***FGS***, ***Pell eligibility***, ***HS GP A***, Eng remediation, **Math remediation**, **Pre-college experience**	.537	.000	1.711	0.183	12%
Entering enrollment variables	***Total # of enrolled terms***	.493	.000	1.637	-0.074	-5%
	# of Full-time terms after the 4th term	.475	.000	1.608	-0.030	-2%
	Term units enrolled	.789	.000	2.201	0.593	39%
Entering major status variables	Major undeclared in first 4 terms	.785	.000	2.193	-0.008	-1%
	Major undeclared after the 4th term	.787	.000	2.196	0.003	0%
	Major changed in first 4 terms	.752	.000	2.120	-0.076	-5%
	Major changed after the 4th term	.750	.000	2.116	-0.004	0%
	Double majors/minors	.742	.000	2.100	-0.016	-1%
	STEM majors	.756	.000	2.131	0.031	2%
Entering term performance variables	***Term GPA***	.667	.000	1.948	-0.183	-12%
	Term units earned	-0.148	.200	0.862	-1.086	-71%
Final model:	Entering % of on-tracking terms	-0.138	.233	0.871	0.008	1%

* Factors in bold have statistically significant effect on graduation at entering.

Factors that increase Fall 2009 graduation rate:

- Term units earned
- Term GPA
- Total # of enrolled terms
  Major changed in first 4 terms
- # of full-time terms after the 4th term

Factors that decrease Fall 2009 graduation rate:

- Term units enrolled
- Cohort quality
- STEM majors

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Step 3:

Linking to institutional efforts and IR roles

Term performance

- Why students earned more units even when enrolled in less units in a term?
- Why do they have higher passing rates or grades?

Enrollment

- Why do we keep more students enrolled in school?
- Why do more students enroll as full-time students in later terms?

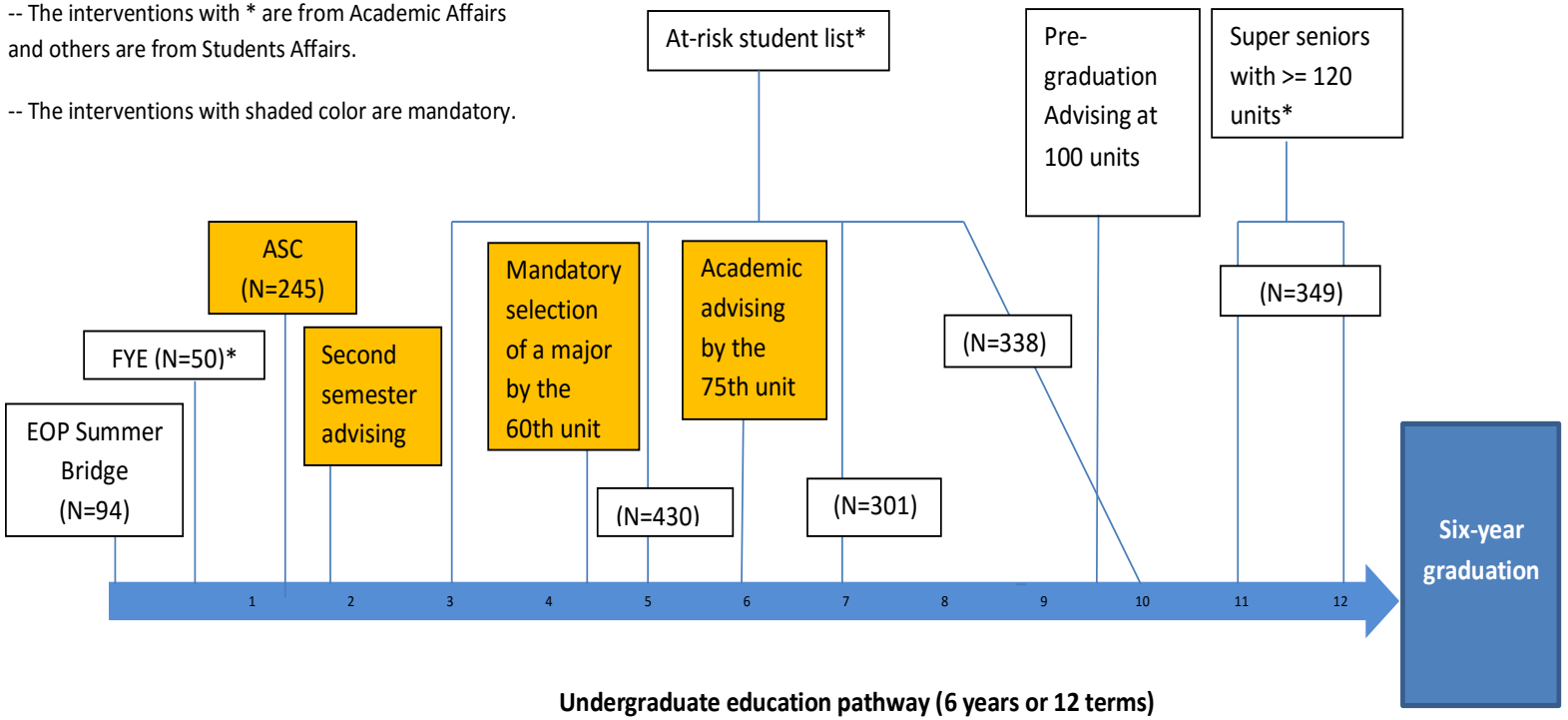
Major status

- Why do we have fewer undeclared majors in first two years?
- Why do we have more students who changed majors in first 2 years?
- Why do we have more students having double majors/minors/STEM majors?

Interventions pipeline (For Fall 2009 FTFTF cohort)

-- The interventions with * are from Academic Affairs and others are from Students Affairs.

-- The interventions with shaded color are mandatory.



Undergraduate education pathway (6 years or 12 terms)

Other (course-related) interventions: Redesign of high failure rate courses, Expand Support Net early warning system to more high failure rate courses, and Expanded Supplemental Instruction (SI) and Service Learning (SL) programs.

Features of interventions

- Multiple interventions were implemented from the beginning to the end so that students were constantly monitored and also to receive support interventions.
- Interventions involved collaborations between Academic Affairs and Students Affairs, particularly early involvement by Academic Affairs (colleges, departments and faculty members).
- Interventions focused on underrepresented minorities (URM), First Generation students (FGS), at-risk students, and high failure courses.

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Questions?

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