

# CT PA 12-40

Testing the Effectiveness of Connecticut Community Colleges' Developmental  
Education Reform

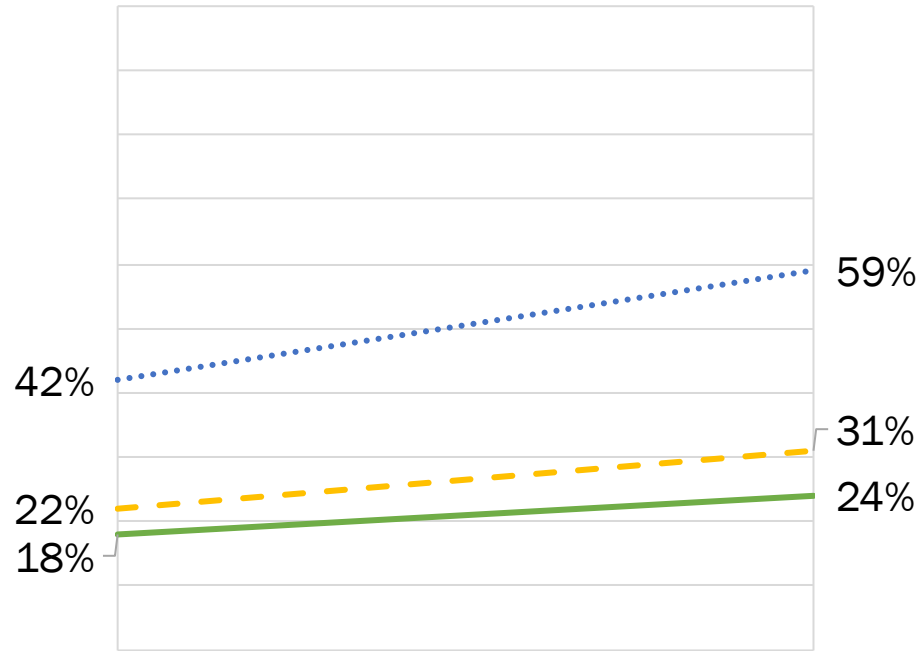
JD Mathewson, PhD  
Office of Research and Systemic Effectiveness  
Connecticut State Colleges and Universities

Presentation for the PA 12-40 Advisory Committee

# The Big Cohort

- First-time, Associate's-seeking students beginning in the semesters Fall 2011 through Spring 2017 (for course-level outcomes) or Spring 2015 (for career outcomes)
- Transitional, Intensive and Embedded Math and/or English Students
- Tracked progress for three years/twelve terms

**College Level Math  
Attempt, Completion and Pass Rates**

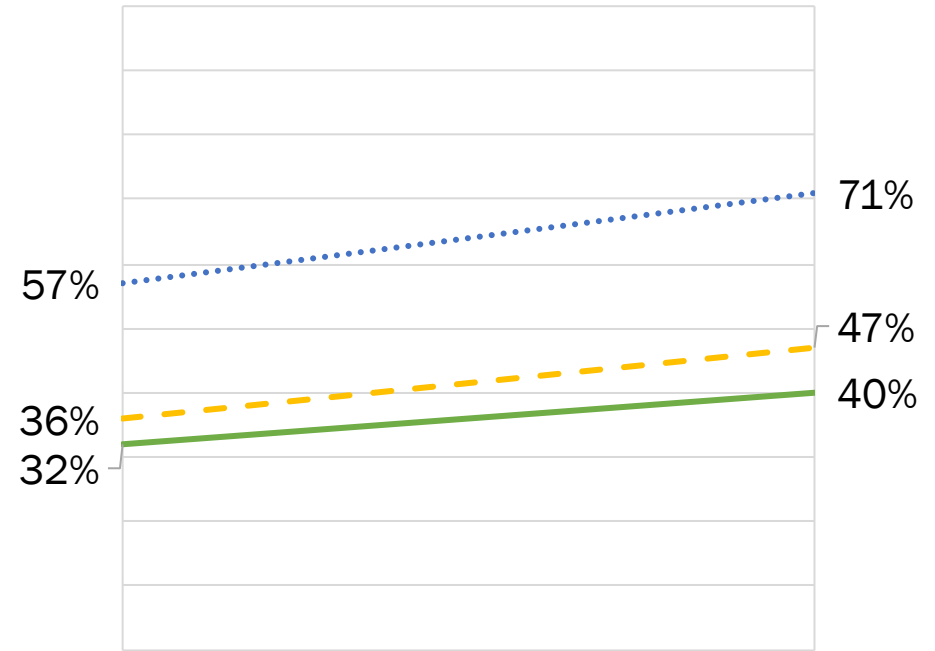


**Traditional**

**PA 12-40**

..... % Attempt    - - - % Complete    — % Pass

**College Level English  
Attempt, Completion and Pass Rates**

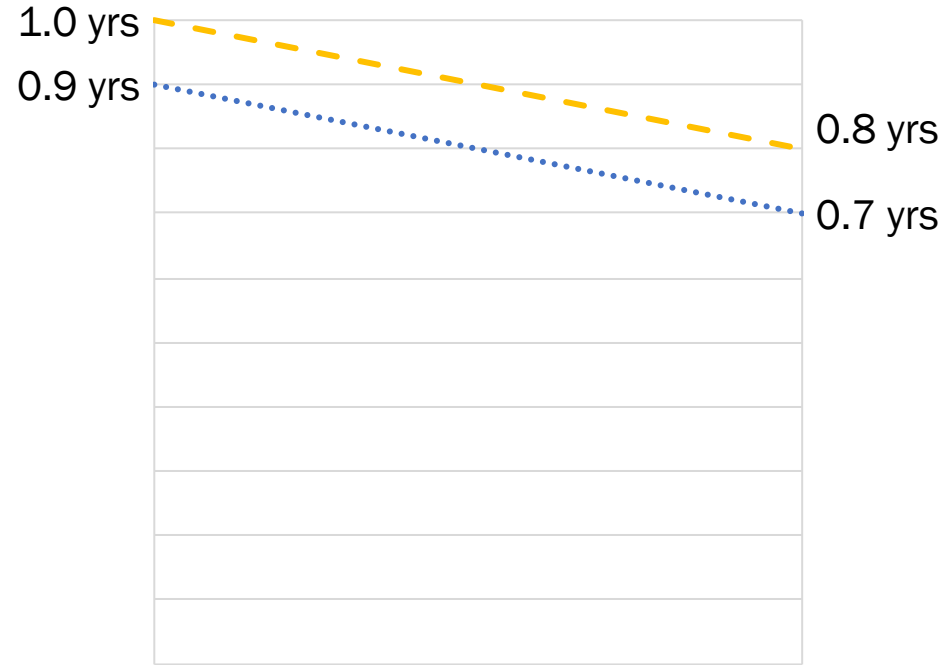


**Traditional**

**PA 12-40**

..... % Attempt    - - - % Complete    — % Pass

**College Level Math  
Time to Attempt, Complete & Pass**

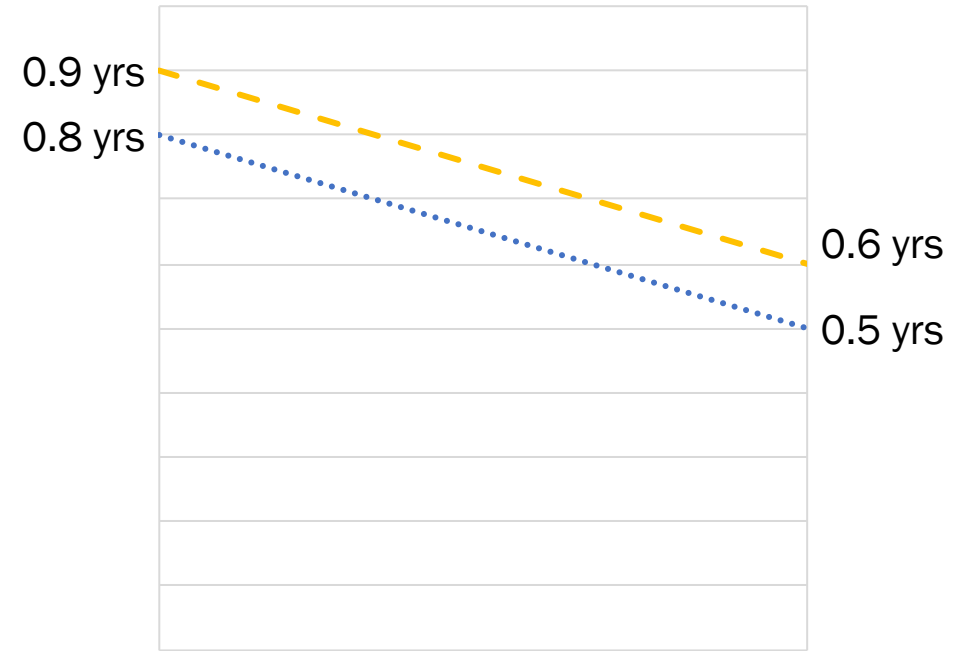


**Traditional**

**PA 12-40**

..... Time to Attempt    - - - Time to Complete & Pass

**College Level English  
Time to Attempt, Complete & Pass**

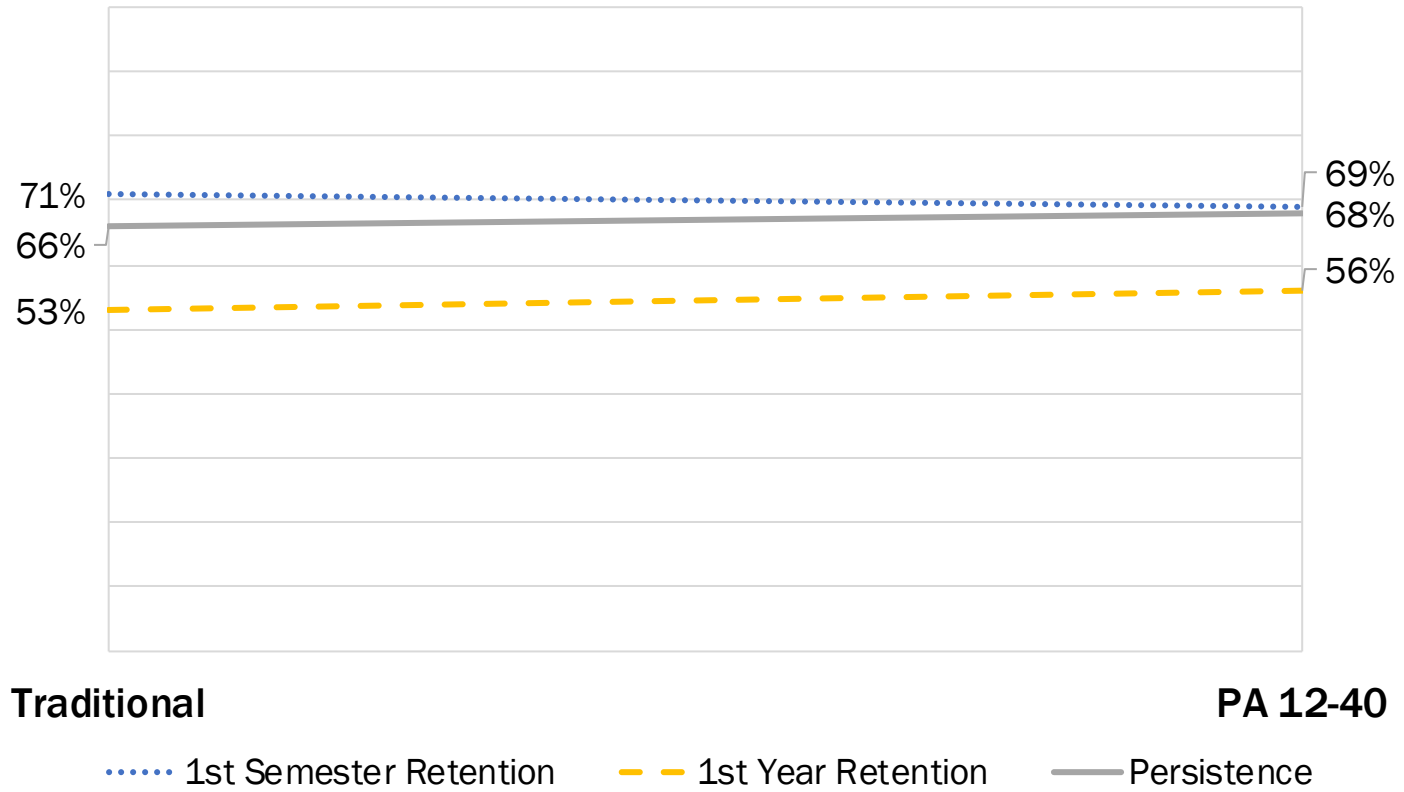


**Traditional**

**PA 12-40**

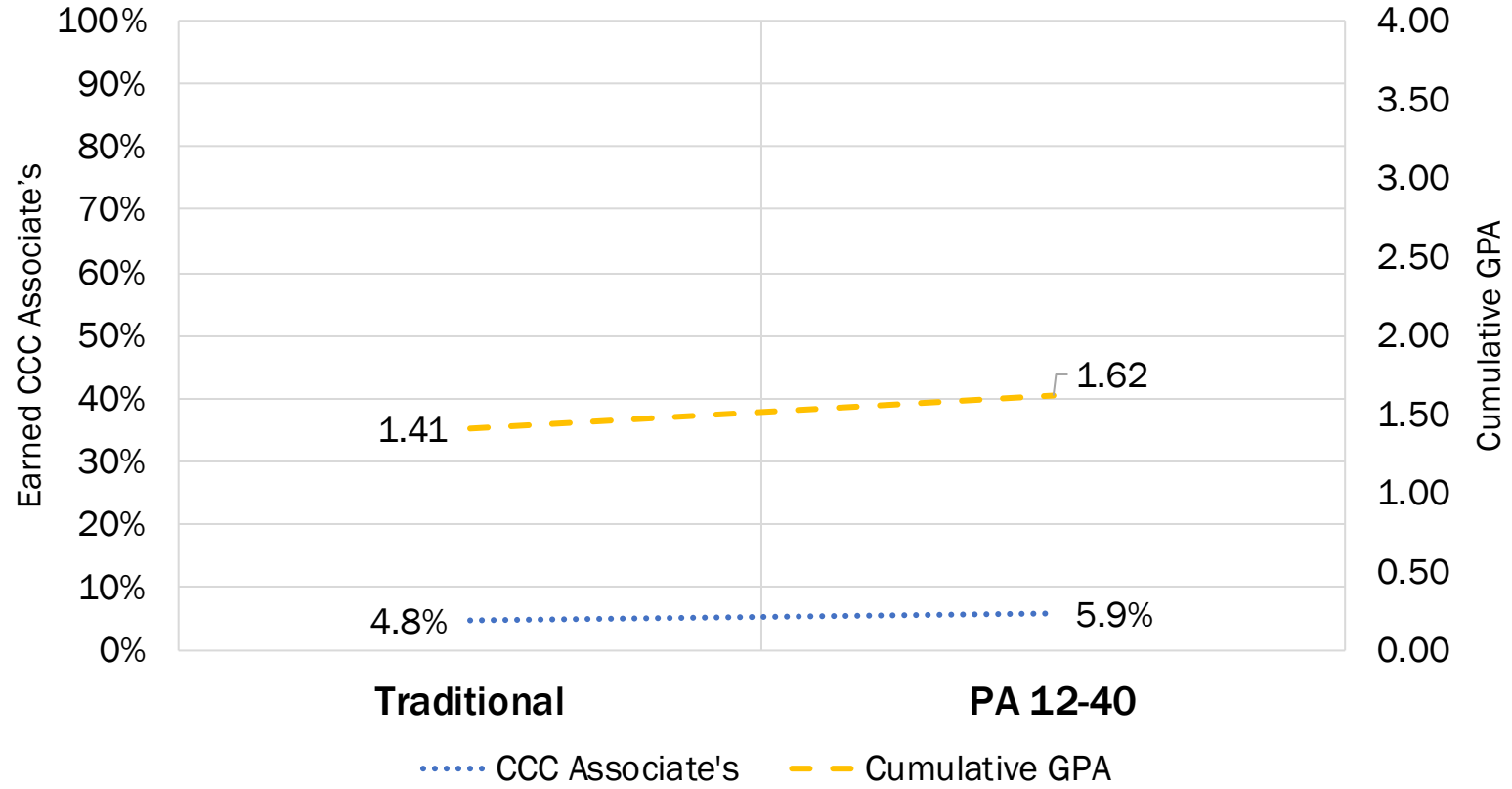
..... Time to Attempt    - - - Time to Complete & Pass

## Career Statistics Retention and Persistence



# Career Statistics

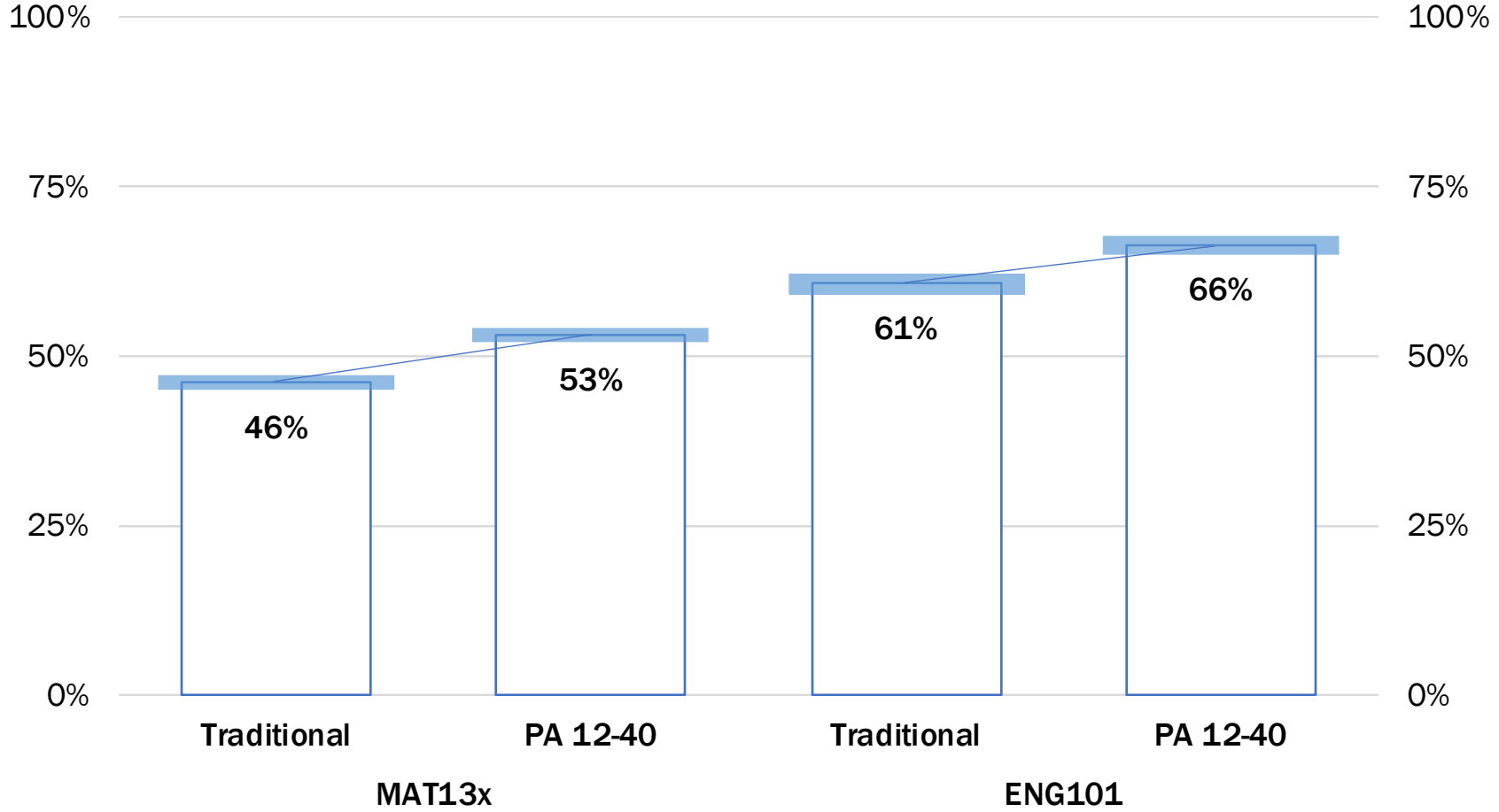
## Grade Point Average and Graduation Rate



# The Narrow Cohort

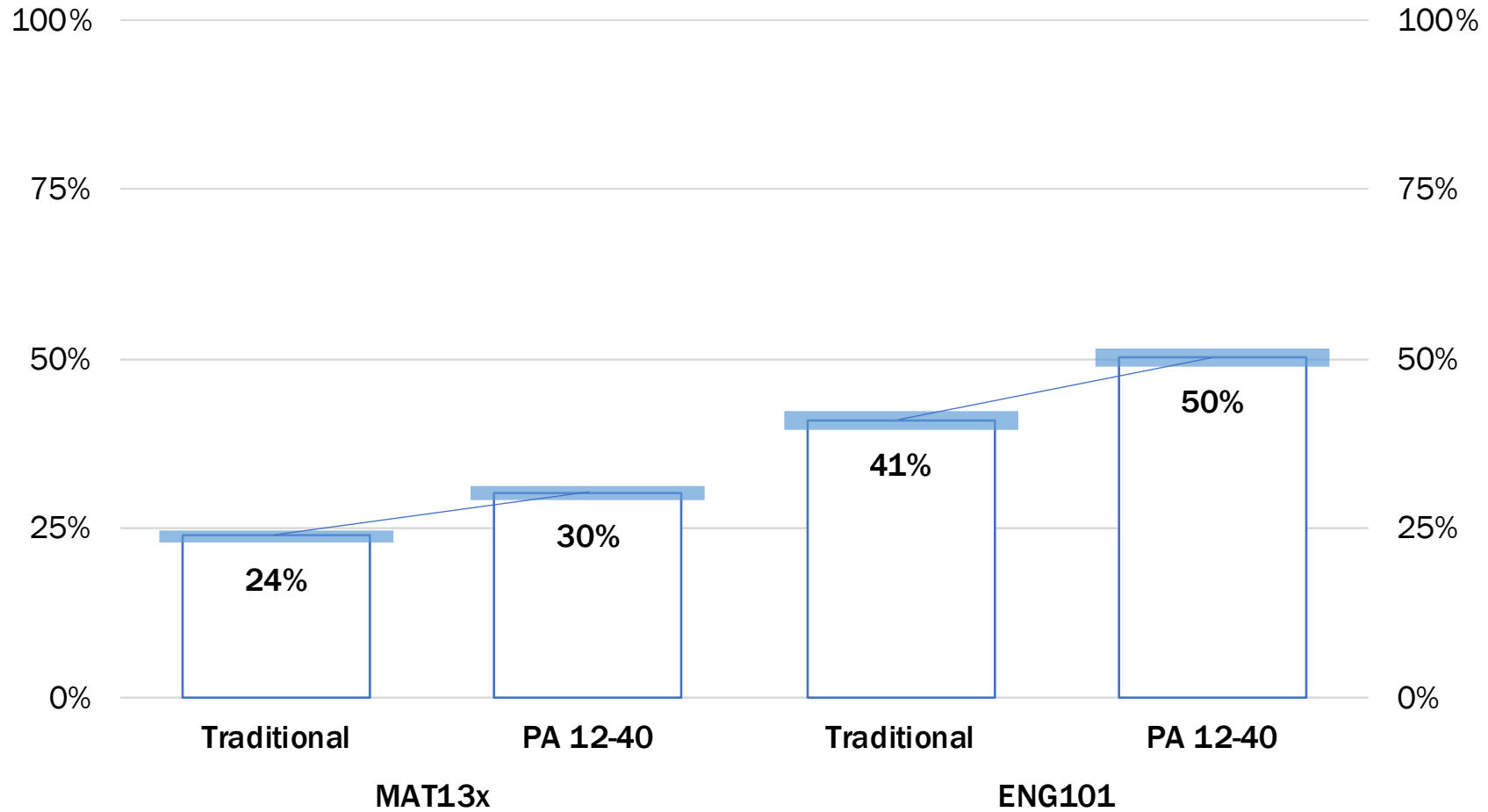
- First-time, Associate's-seeking students beginning in the semesters Fall 2011 and Fall 2014
- Developmental Math or English Students
  - Accuplacer Algebra score between 28 and 49
  - Combined Accuplacer Reading and Sentence Skills score between 111 and 159
- Tracked progress for three years/twelve terms

# Percent of Cohort Enrolling in College-Level Courses

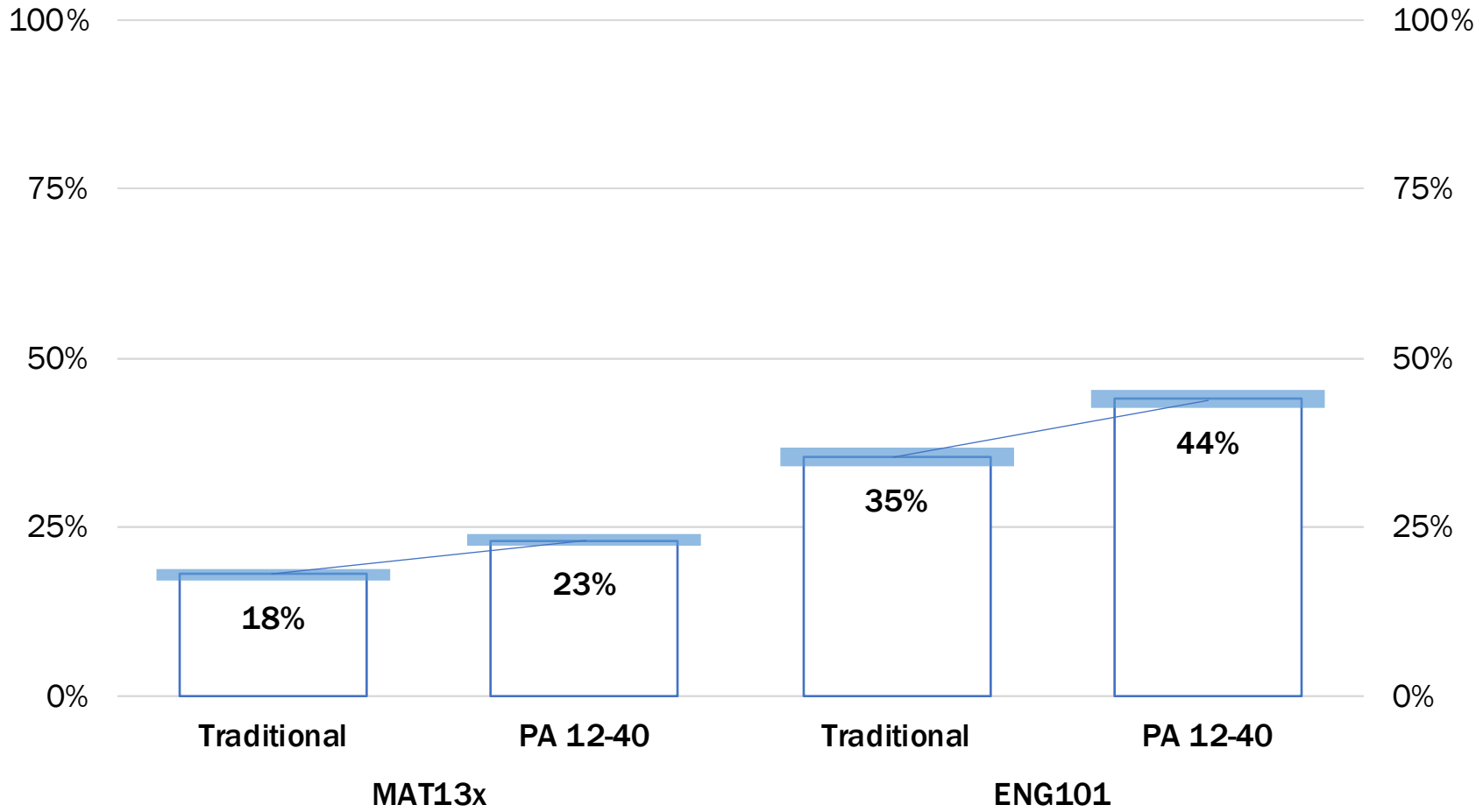




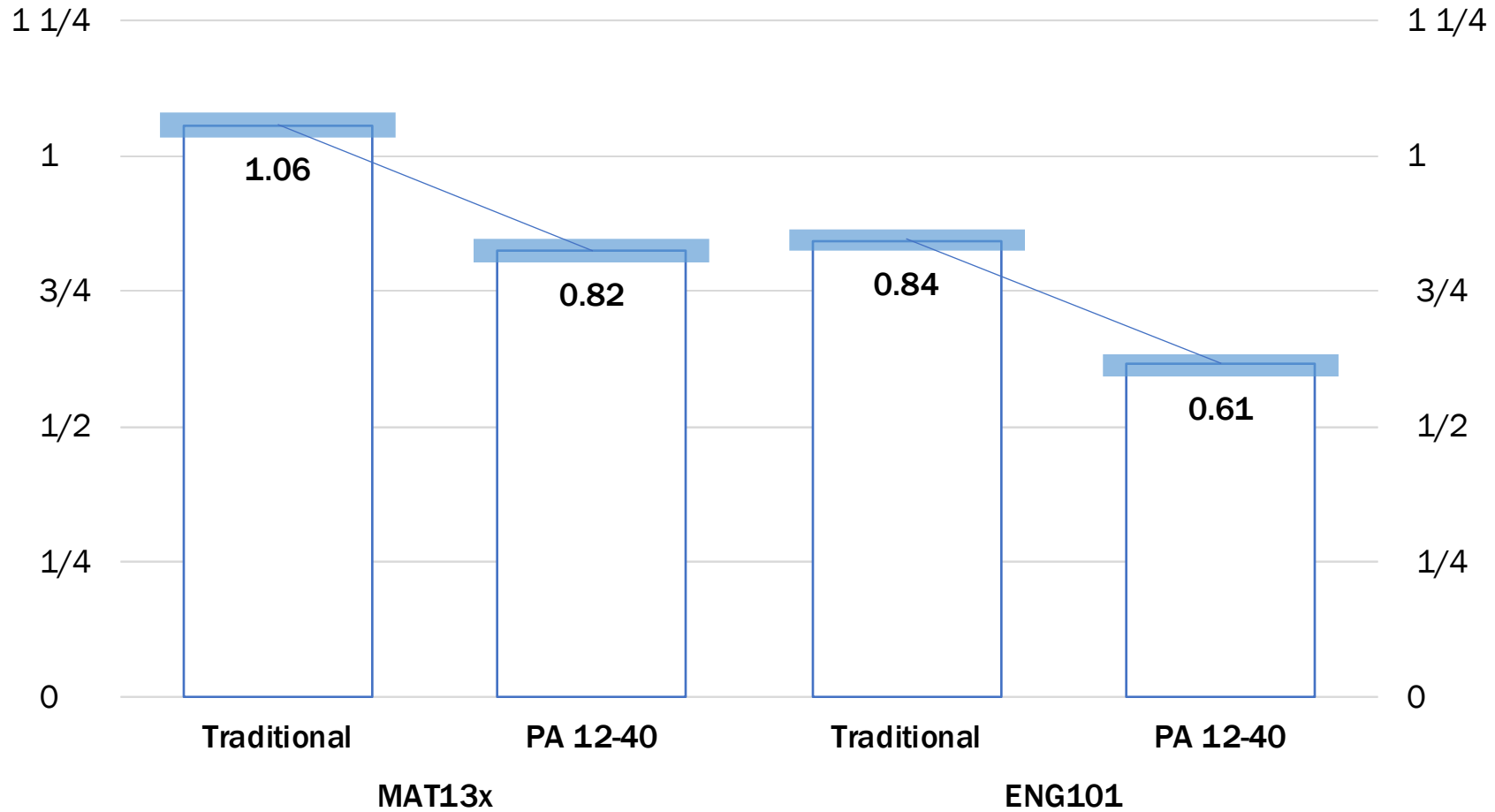
## Percent of Cohort *Completing* College-Level Courses on Time



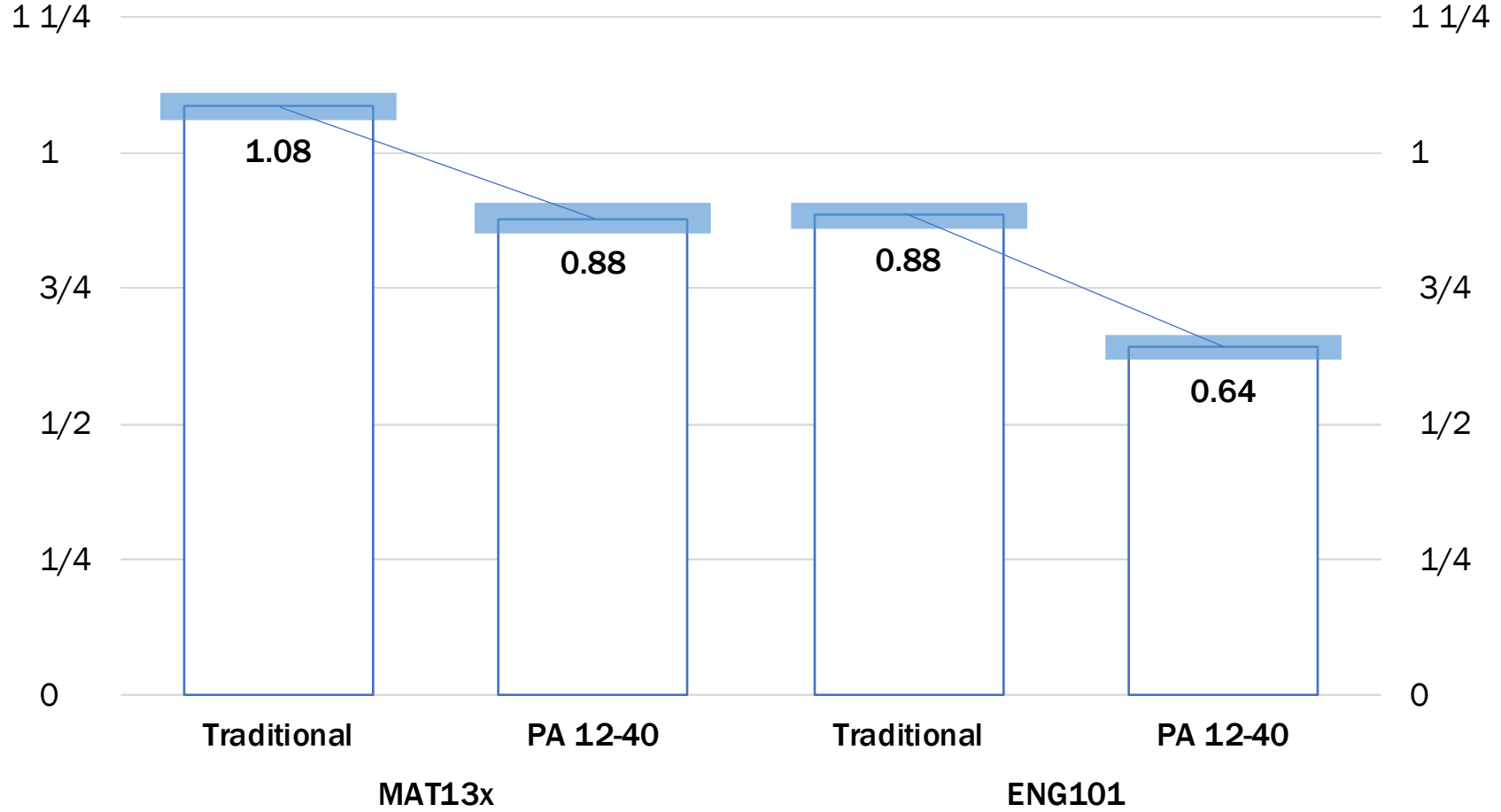
## Percent of Cohort *Passing* College-Level Courses on Time



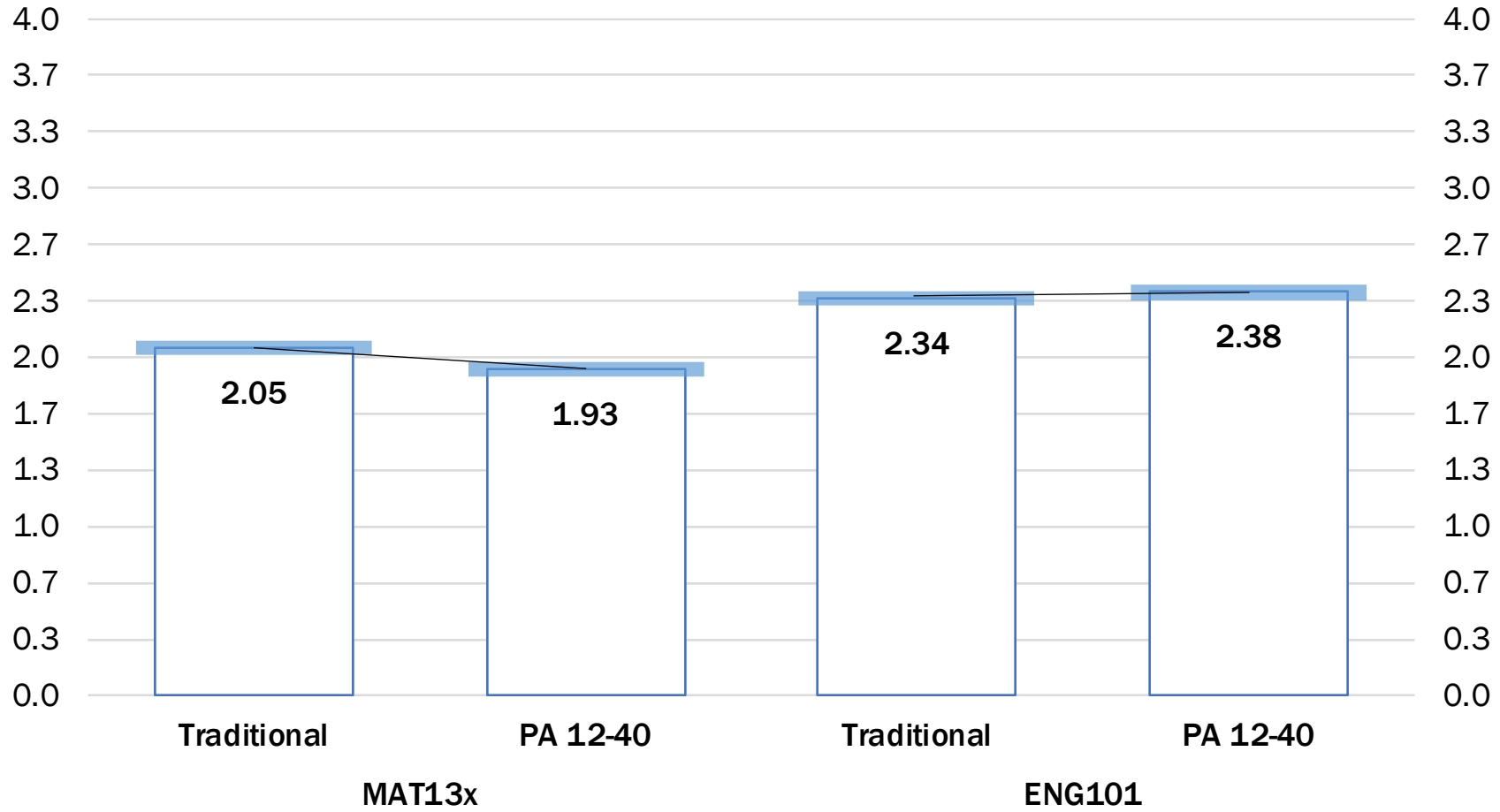
## Mean Years to College-Level Course Completion



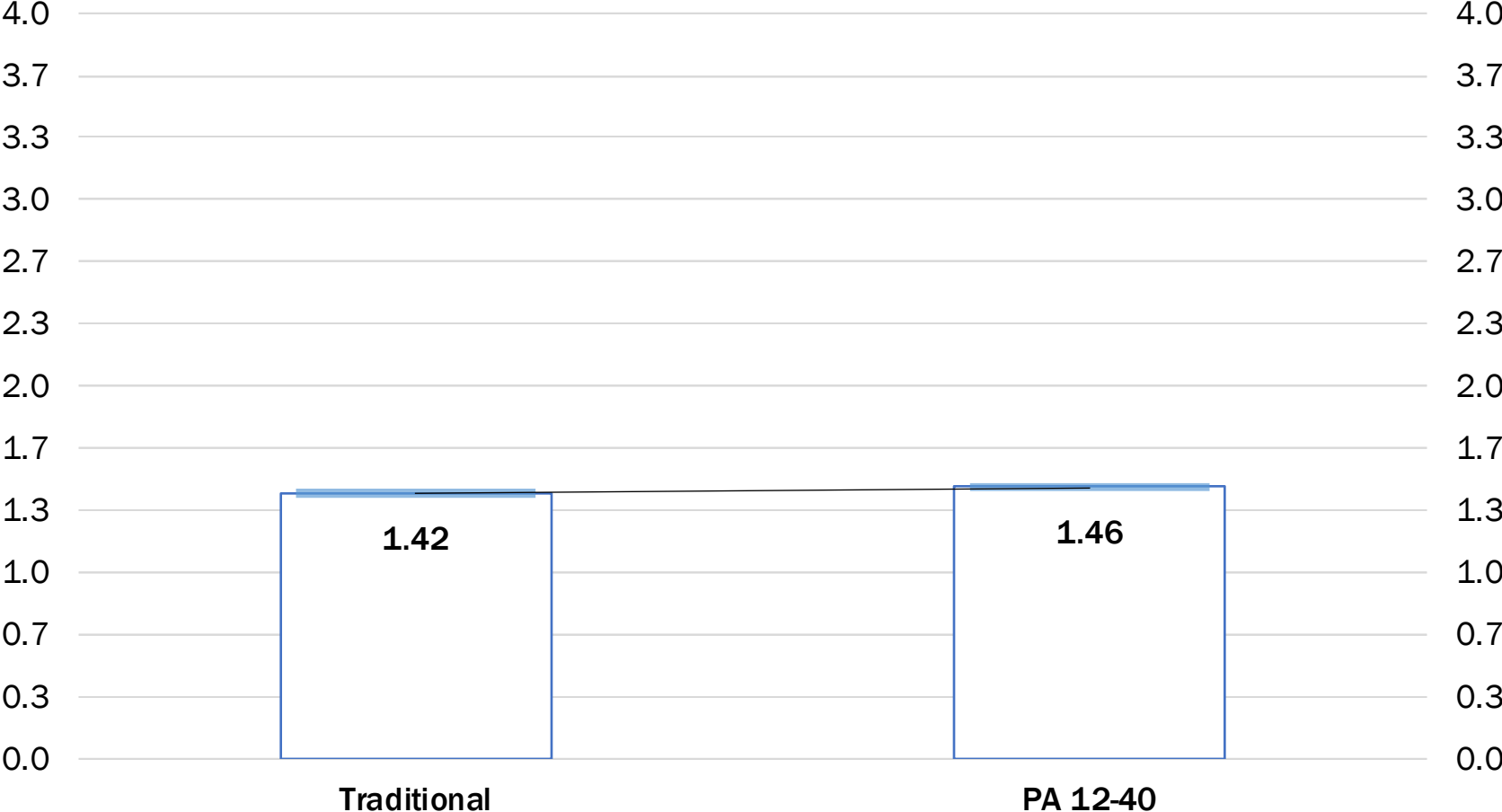
# Mean Years to College-Level Course *Passage*



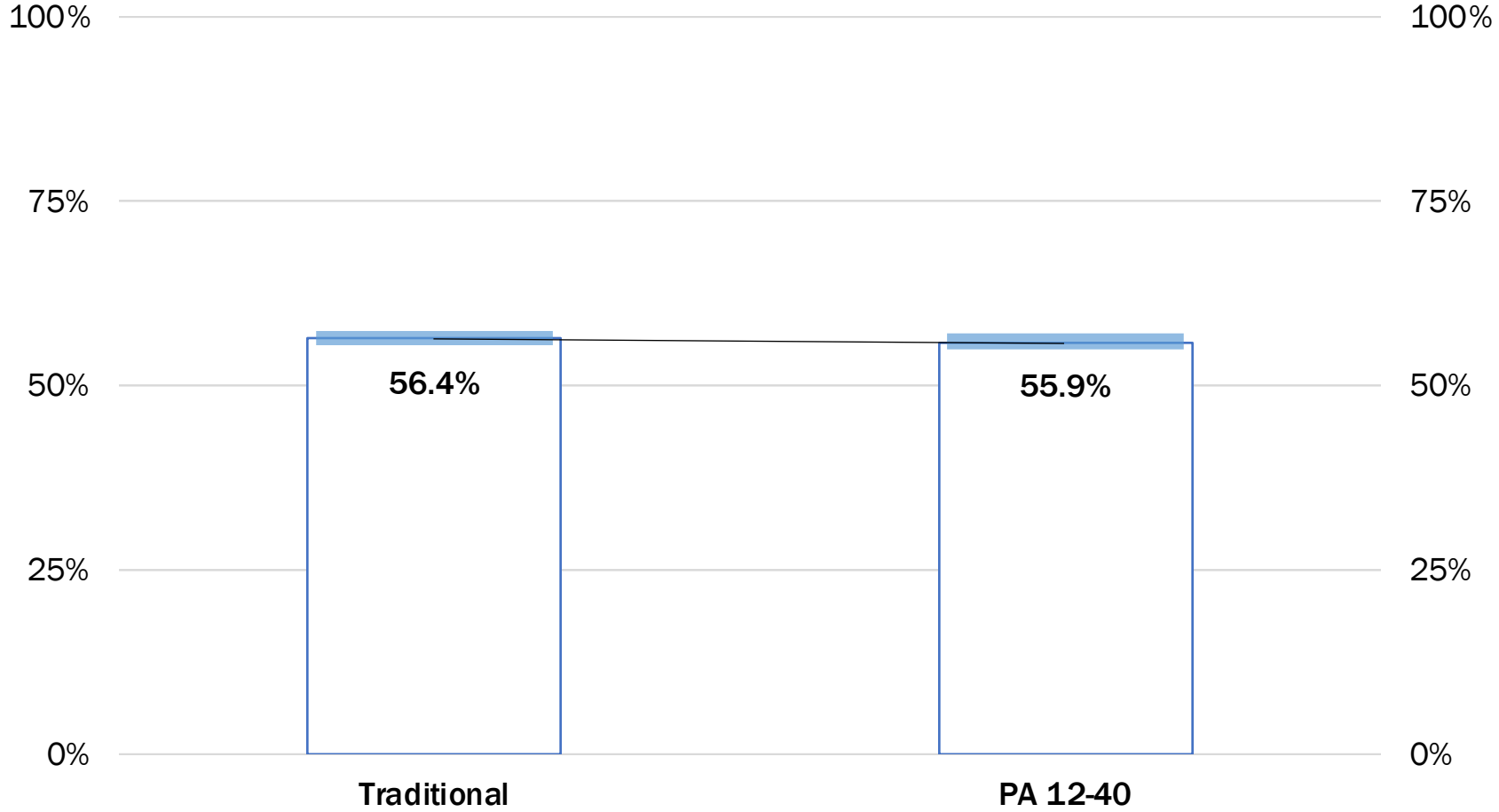
# Mean Best Score in College-Level Course



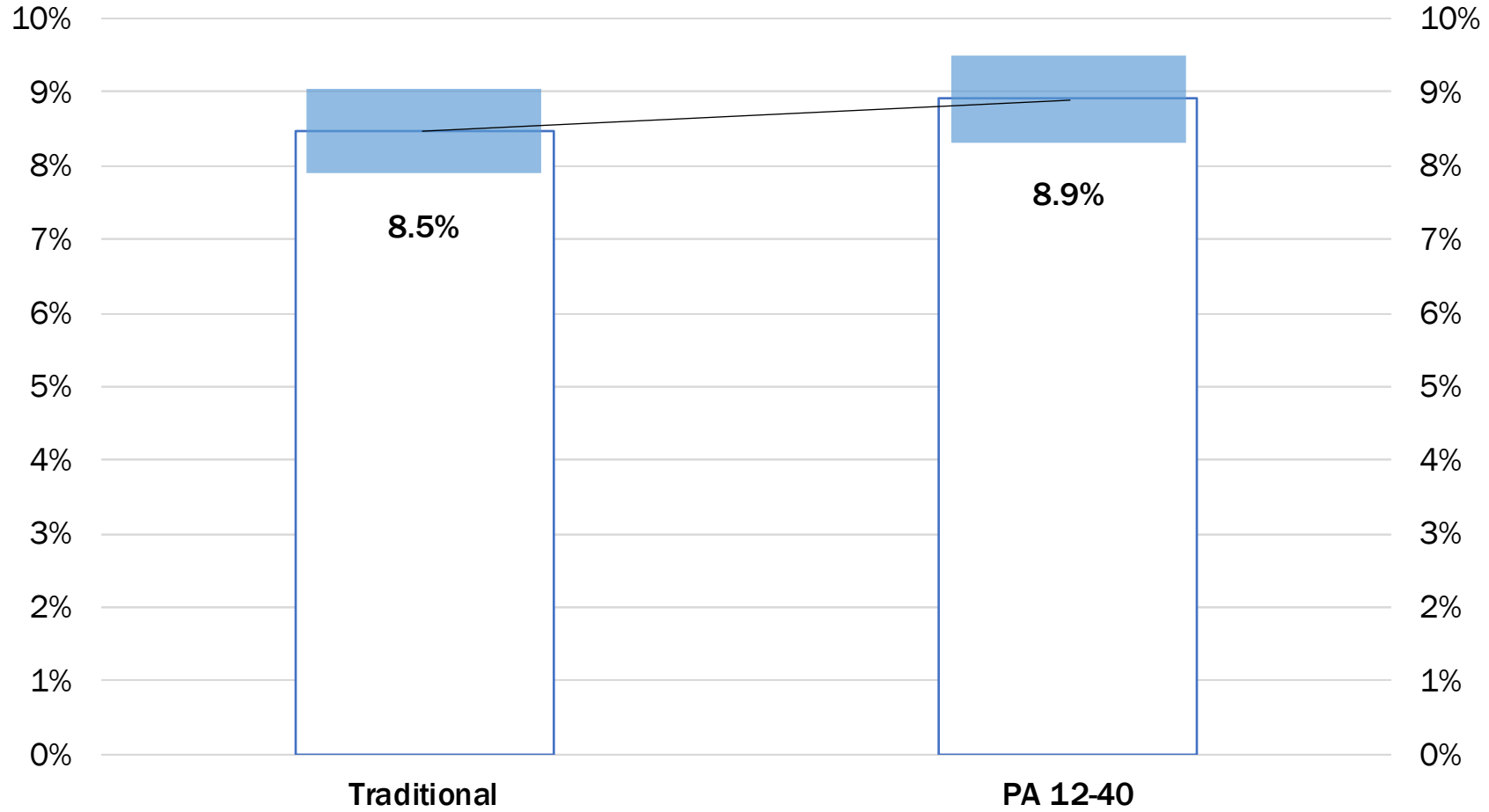
# Cohort Three Year Cumulative Grade Point Average



# Cohort One-Year Retention Rate



### Cohort In-System 150% Graduation Rate (Includes Certificates)





**Combined Regression Findings Summary\***

	Attempt %**		Complete %		Time to Complete	
	Odds Ratios		Odds Ratios		Beta Coefficients	
	MAT13x	ENG101	MAT13x	ENG101	MAT13x	ENG101
Developmental Epoch = PA1240	1.34	1.34	1.42	1.43	-.23	-.21
Accuplacer Algebra	1.04		1.07		-.02	
Accuplacer Combined English		1.02		1.02		-.01
Constant	.18	.21	.03	.05	1.69	2.12

\*Not shown: demographic controls for age, gender, race and ethnicity, first generation and Pell-eligible students.

\*\*Excludes embedded students because they automatically take college-level courses.

**All main variables are significant at  $p < 0.001$  after controlling for demographic factors.**

# Findings

- Attempt and completion rates are up under PA 12-40 by a statistically significant degree even when controlling for test scores and demographics.
- Time to completion is down under PA 12-40 by a statistically significant degree even when controlling for test scores and demographics.
- PA 12-40 has had no conclusive effect on grades, retention or graduation rates.

# General Summary

Embedded sections allow access

Intensive Level sections are as effective as  
previous developmental sections

Transition pilots need further research

Multiple Measures are placing more  
students at higher levels.

# Data Appendix

# Next Steps

- Test effects across demographics
- Test against Guided Pathways KPIs
- Take a closer look at grading effects
- Test downstream effects on next-level courses
- Break down by embedded model

## Success in Attempting, Completing and Passing MAT13x (n = 39,527)

Model	Attempt	Best Score	Time to Attempt	Time to Complete	Time to Pass	Complete on Time	Pass on Time
Traditional	42%	2.09	0.9 yrs	1.0 yrs	1.0 yrs	22%	18%
PA 12-40	59%	2.05	0.7	0.8	0.8	31%	24%
$\Delta$	<b>+17%</b>	<b>-0.04</b>	<b>-0.2</b>	<b>-0.2</b>	<b>-0.2</b>	<b>+9%</b>	<b>+7%</b>

### Success in Attempting, Completing and Passing ENG101 (n = 35,991)

Model	Attempt	Best Score	Time to Attempt	Time to Complete	Time to Pass	Complete on Time	Pass on Time
Traditional	57%	2.35	0.8 yrs	0.9 yrs	0.9 yrs	36%	32%
PA 12-40	71%	2.33	0.5	0.6	0.6	47%	40%
$\Delta$	<b>+15%</b>	<b>-0.02</b>	<b>-0.3</b>	<b>-0.3</b>	<b>-0.3</b>	<b>+11%</b>	<b>+9%</b>

Trends in GPA, Retention, Persistence and Graduation (n = 36,269)

Model	Cumulative GPA	First Sem. Retention	First Year Retention	Persistence	CCC Associate's
Traditional	1.41	71%	53%	66%	4.8%
PA 12-40	1.62	69%	56%	68%	5.9%
$\Delta$	<b>+0.21</b>	<b>-2%</b>	<b>+2%</b>	<b>+2%</b>	<b>+1.2%</b>



## Summary of Logistic Regression Analysis for Variables Predicting MAT13x Enrollment

	Model 1 (n = 5,447)			Model 2 (n = 4,521)		
Predictor	B	SE B	e <sup>B</sup>	B	SE B	e <sup>B</sup>
1. Developmental Epoch = PA1240	.30**	.06	1.344	.31**	.06	1.362
2. Accuplacer Algebra Test Score	.04**	.00	1.043	.05**	.01	1.047
3. Age upon Enrollment: 18-24				-.40**	.08	.673
4. First Generation Student				-.16*	.07	.854
5. White Non-Hispanic				.33**	.07	1.394
6. Woman				.29**	.06	1.332
7. Pell Grant Eligible				-.13	.07	.877
0. Constant	-1.74**	.18	.175	-1.69**	.23	.185
X <sup>2</sup>		101.03			178.13	

\*p < .05.; \*\*p < .01.

## Summary of Logistic Regression Analysis for Variables Predicting MAT13x Completion on Time

	Model 1 (n = 5,447)			Model 2 (n = 4,521)		
Predictor	B	SE B	e <sup>B</sup>	B	SE B	e <sup>B</sup>
1. Developmental Epoch = PA1240	.33**	.06	1.387	.35**	.07	1.417
2. Accuplacer Algebra Test Score	.06**	.01	1.066	.06**	.01	1.067
3. Age upon Enrollment: 18-24				-.44**	.08	.647
4. First Generation Student				-.02	.08	.985
5. White Non-Hispanic				.46**	.07	1.580
6. Woman				.25**	.07	1.287
7. Pell Grant Eligible				-.26*	.08	.772
0. Constant	-3.56**	.20	.028	-3.46**	.25	.031
X <sup>2</sup>		184.89			255.79	

\*p < .05.; \*\*p < .01.

## Summary of OLS Regression Analysis for Variables Predicting Years Elapsed from College Enrollment to MAT13x Completion

Independent Variable	Model 1 (n = 2,015)			Model 2 (n = 1,672)		
	B	SE B	$\beta$	B	SE B	$\beta$
0. Constant	1.696**	.089		1.691**	.111	
1. Developmental Epoch = PA1240	-.228**	.028	-.179	-.234**	.031	-.182
2. Accuplacer Algebra Test Score	-.017**	.002	-.159	-.017**	.003	-.160
3. Age upon Enrollment: 18-24				.062	.035	.042
4. First Generation Student				-.043	.034	-.030
5. White Non-Hispanic				-.105**	.032	-.081
6. Woman				.057	.031	.043
7. Pell Grant Eligible				.043	.033	.032
R <sup>2</sup>		.06			.07	

\*p < .05.; \*\*p < .01.

## Summary of Logistic Regression Analysis for Variables Predicting ENG101 Enrollment

	Model 1 (n = 4,782)			Model 2 (n = 3,969)		
Predictor	B	SE B	e <sup>B</sup>	B	SE B	e <sup>B</sup>
1. Developmental Epoch = PA1240	.29**	.07	1.740	.27**	.07	1.304
2. Accuplacer English Test Total	.01**	.002	1.022	.01**	.003	1.014
3. Age upon Enrollment: 18-24				-.06	.08	.941
4. First Generation Student				-.06	.08	.942
5. White Non-Hispanic				.19*	.08	1.213
6. Woman				.40**	.07	1.486
7. Pell Grant Eligible				-.09	.08	.917
0. Constant	-1.61**	.33	.078	-1.54**	.39	.214
X <sup>2</sup>		52.71			78.03	

\*p < .05.; \*\*p < .01.

## Summary of Logistic Regression Analysis for Variables Predicting ENG101 Completion on Time

	Model 1 (n = 4,782)			Model 2 (n = 3,969)		
Predictor	B	SE B	e <sup>B</sup>	B	SE B	e <sup>B</sup>
1. Developmental Epoch = PA1240	.38**	.06	1.468	.36**	.07	1.432
2. Accuplacer English Test Total	.02**	.002	1.020	.02**	.002	1.019
3. Age upon Enrollment: 18-24				-.05	.08	.951
4. First Generation Student				-.11	.08	.894
5. White Non-Hispanic				.22**	.07	1.251
6. Woman				.36**	.07	1.434
7. Pell Grant Eligible				-.16*	.07	.849
0. Constant	-3.08**	.31	.046	-3.03**	.36	.048
X <sup>2</sup>		146.63			123.12	

\*p < .05.; \*\*p < .01.

## Summary of OLS Regression Analysis for Variables Predicting Years Elapsed from College Enrollment to ENG101 Completion

Independent Variable	Model 1 (n = 2,549)			Model 2 (n = 2,118)		
	B	SE B	$\beta$	B	SE B	$\beta$
0. Constant	2.037**	.108		2.116**	.126	
1. Developmental Epoch = PA1240	-.230**	.021	-.210	-.206**	.023	-.189
2. Accuplacer English Test Total	-.009**	.001	-.210	-.009**	.001	-.220
3. Age upon Enrollment: 18-24				-.020	.027	-.016
4. First Generation Student				-.005	.026	-.004
5. White Non-Hispanic				-.023	.024	-.021
6. Woman				-.042	.023	-.038
7. Pell Grant Eligible				.033	.026	.029
R <sup>2</sup>		.09			.09	

\*p < .05.; \*\*p < .01.