

*Residential Learning  
Communities as a High-Impact  
Practice Conference*

Elon University  
Center for Engaged Learning  
June 17, 2019  
Elon, NC

# Overview

- Session plan
- About St. Edward's
- Models implemented & associated programming
- Activity: Predict model with highest cohesion
- Results



# ABOUT ST. EDWARD'S

- Located in Austin, Texas
- Private, Catholic liberal arts university
- Founded in 1885 by the Congregation of Holy Cross
- 60+ bachelor's and master's degree programs
- Partner universities on 5 continents

# OUR COMMUNITY

- 4,400+ Students
- Nearly 500 faculty members
- Approximately 60 countries and 45 states represented
- More than 40 faith traditions represented
- Hispanic Serving Institution (42%)
- Minority Serving Institution (52%)



# Programming Common to All Models

- Pre-college Bridge program (FARM)
- Science Seminar Course (SCIE 1199; Spring, 1 credit)
- Housed together (EXCEPT LLC Lite)
- Summer research
- Co- & Extra-curricular activities
- Cohort scheduling (EXCEPT in Fall 2017)

The next few slides show the differences in the RLC models implemented.

# Pilot Models

## A: STEP Model (NSF Grant #0969153)

- Aka Community for Achievement in Science, Academics, & Research (CASAR)
- Pre-college Bridge program (FARM)
  - One week, two weeks before classes begin
- First Year Seminar Course (SCIE 1100, Fall, 1 credit)
- Tutors in residence halls
- Textbook stipend
- Application required (opt-in)
- Originally implemented in Fall 2010

# Pilot Models

## B: TG – LLC lite (TG Public Benefit Program)

- Aka Community for Achievement in Science & Mathematics (CASM)
- Pre-college Bridge program (FIRE)
  - One day only (Saturday), one week before classes begin
- First Year Seminar Course (SCIE 1100, Fall, 1 credit)
- Housed haphazardly (students select their hall and room)
- Free access to University Tutoring Center
- No application required (opt-out)

# IUSE Models (NSF Grant #1525490)

## 1: Science LLC

- Pre-college Bridge program (FARM)
  - Three days, one week before classes begin
  - Modified for sustainability
- Freshman Seminar Course hybrid (FSEM 1409, Fall)
  - Combines university required general education freshman seminar course with original 1<sup>st</sup> Year Seminar Course content
  - First implemented FA18, prior cohorts took SCIE 1100
- Science tutor center, first implemented FA17, prior cohorts had tutors in residence hall
- Application required (opt in)



## 2: IUSE Honors LLC (Embedded STEM)

- Pre-college Bridge program (FARM)
  - Three days, one week before classes begin
- By invitation only (to Honors program, ~70 students)
- First Year Seminar Course (SCIE 1100, Fall, 1 credit)
- Honors Seminar Course (HONS 2160, Fall, 1 credit)
- Common science course, General Biology (BIOL 1307)
- Other honors courses possible
- All in Honors residence hall, STEM majors assigned to same floor
- Science Tutor Center, FA17+
- No application (opt out)

# 3: IUSE Embedded Science LLC

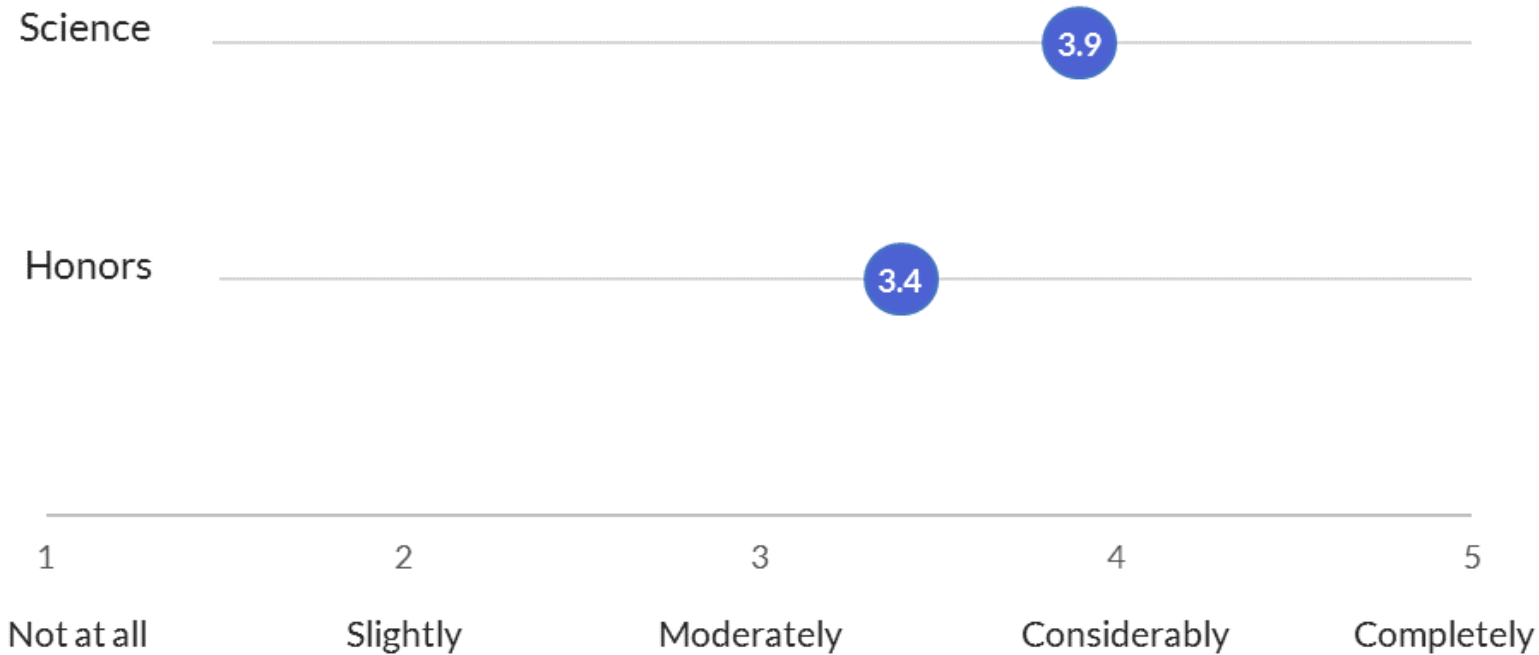
- Pre-college Bridge program (FARM)
  - Three days, one week before classes begin
- Also members of university themed LLCs (70-100 students):
  - Global Experience
  - Leadership
  - Social Justice
  - Wicked Problems (now discontinued)
- First Year Seminar Course (SCIE 1100, Fall, 1 credit)
- Freshman Themed General Education course (4 credits)
- All in one residence hall, STEM majors on same floor
- Science Tutor Center, FA17+
- No application (opt out)

# Group Cohesion Indicators

- I feel connected to my math and science peers in the LLC.
- I study with my math and science peers in the LLC.
- Living with my LLC peers has helped me to do well in my math/science classes.
- I want to coordinate with my LLC peers to register to take classes together.
- I am happy I was selected to be a member of the math and science LLC.
- I can recognize most of the people who live in my LLC.
- Most of the students in my LLC know me.
- I have influence over what my LLC is like.
- Students who live in my LLC and I want the same things from the community.
- If there is a problem in this LLC, students who live here can get it solved.
- Students in this LLC watch after each other and help each other when they can.
- I feel a strong sense of community with the students in my LLC.

# LLC & Group Cohesion – Fall 2016

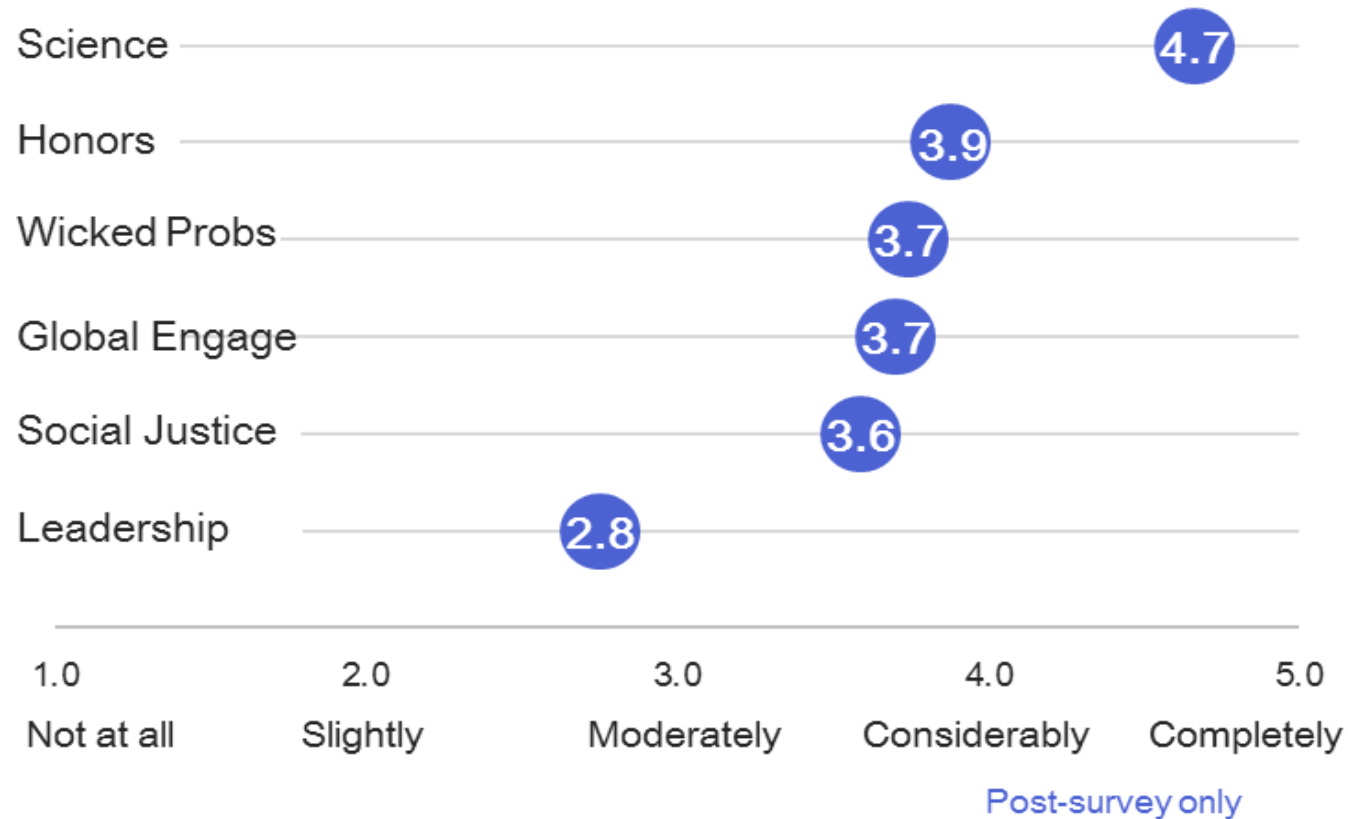
Agreement on group cohesiveness by LLC



LLC	n/N	FARM
Honors	5/10	7
Science	23/23	23

# LLC & Group Cohesion - Fall 2017

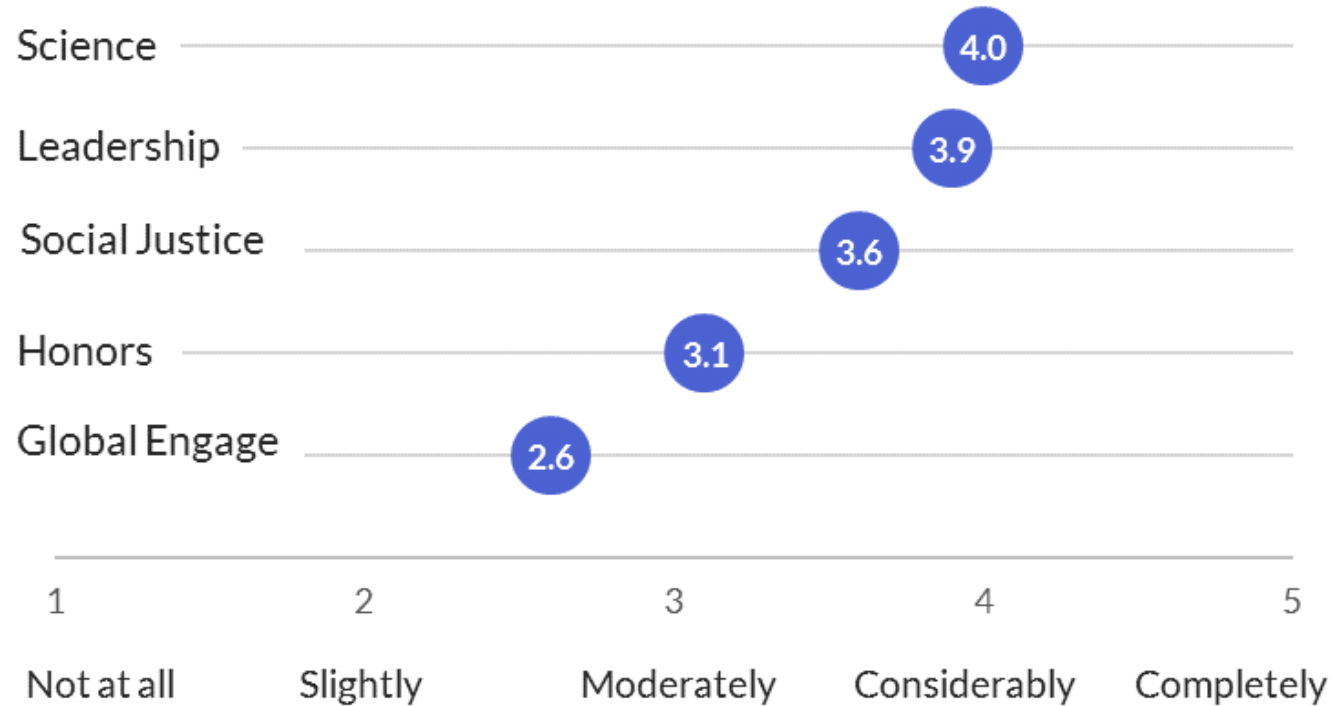
Agreement on group cohesiveness by LLC



LLC	n/N	FARM
Global Engagement	9/12	10
Honors	18/19	11
Leadership	23/23	12
Science	19/22	19
Social Justice	6/8	4
Wicked Problems	26/25	19

# LLC & Group Cohesion – Fall 2018

Agreement on group cohesiveness by LLC



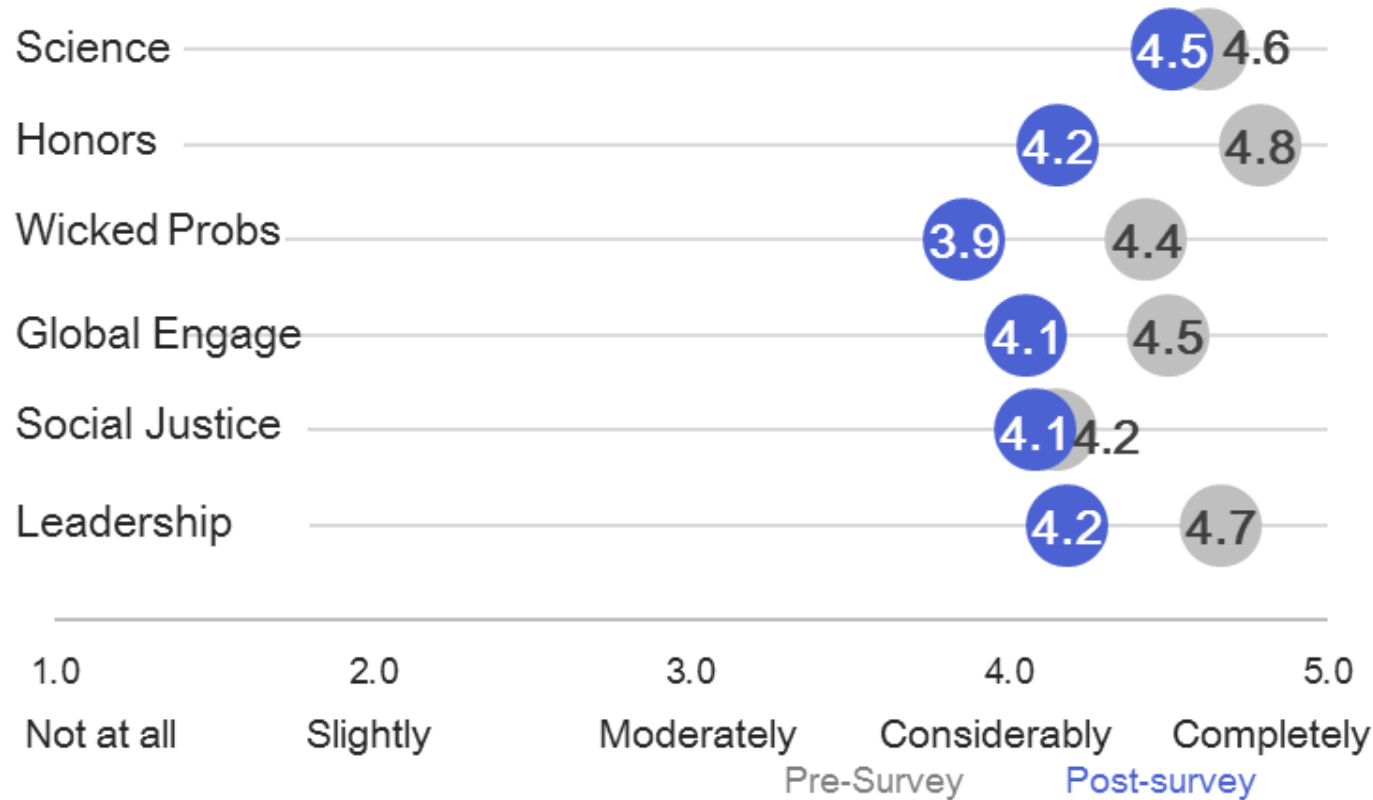
LLC	n/N	FARM
Global Engagement	9/10	6
Leadership	5/7	1
Honors	23/30	10
Science	43/46	41
Social Justice	5/10	2

# LLC Group Cohesion

Students rated how much they agreed with the statements on a five-point Likert scale from “not at all” to “completely.” From the ratings, an average response was calculated for each student to measure feelings of belonging to the LLC. The results are presented Fall 2018. Overall, the effect of LLC on group cohesion was statistically significant,  $F(4, 55) = 5.61, p = .001$ . The post hoc analysis Tukey HSD showed statistically significant differences,  $p < .05$ , **between the standalone Science LLC and the embedded STEM LLC for Honors** as well as between between the standalone Science LLC and the embedded STEM LLC for Global Engagement.

# LLC & Interest in Learning in Science and Mathematics (FA17 data)

Interest in majors & careers in science by LLC



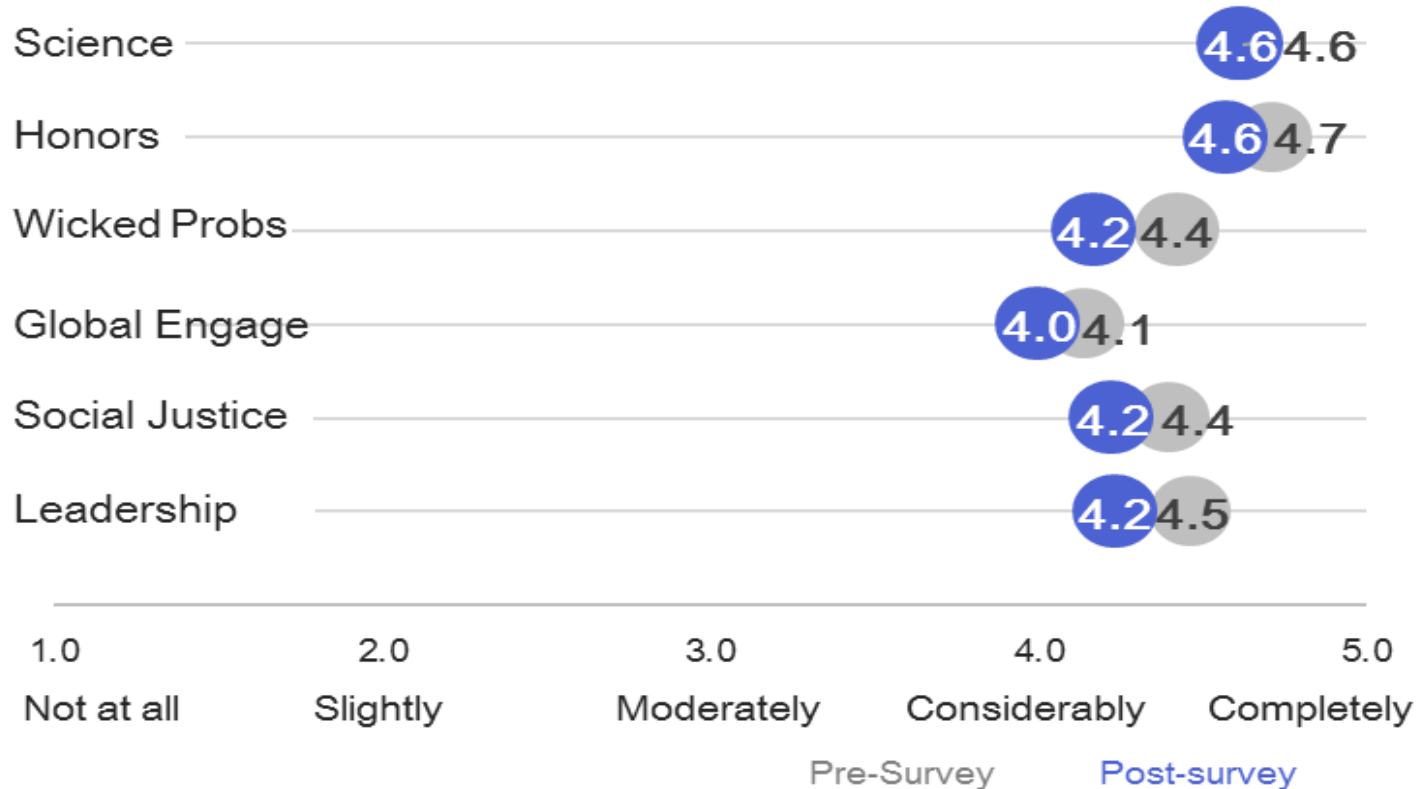
Items of Scale:

- Learning science/mathematics is interesting.
- I'm curious about discoveries in science/mathematics.
- I enjoy studying science/mathematics.



# LLC & Interest in Pursuing Majors, Careers in Science and Mathematics (FA17 data)

Interest, enjoyment in learning math/science by LLC



Items of Scale:

Interest in

- science in general
- taking more science courses
- pursuing a major in science
- pursuing a career in science

# Journals

“I am one of those persons who feels they are not qualified [*to do undergraduate research*], and with her presentation, I want to see where I can get with this, I definitely want to apply and TRY most of all. I will never know until I do.”

“Ever since Dr. Hauser's presentation on bioinformatics during FARM week, I have been kind of interesting [sic] in the field of bioinformatics. Bioinformatics was a completely new field of science for me, I had no idea such a field existed where one could study and apply genome data into other sciences.”

“The only thing that I really will miss during Thanksgiving will be the LLC, it really has been nice having a family here. This has truly been the best experience, I just am really sad that this first part is over.”

“When I think about it, I don't really know how things are going to go like when we all leave and not see each other for 3 WHOLE WEEKS.” [Christmas break]

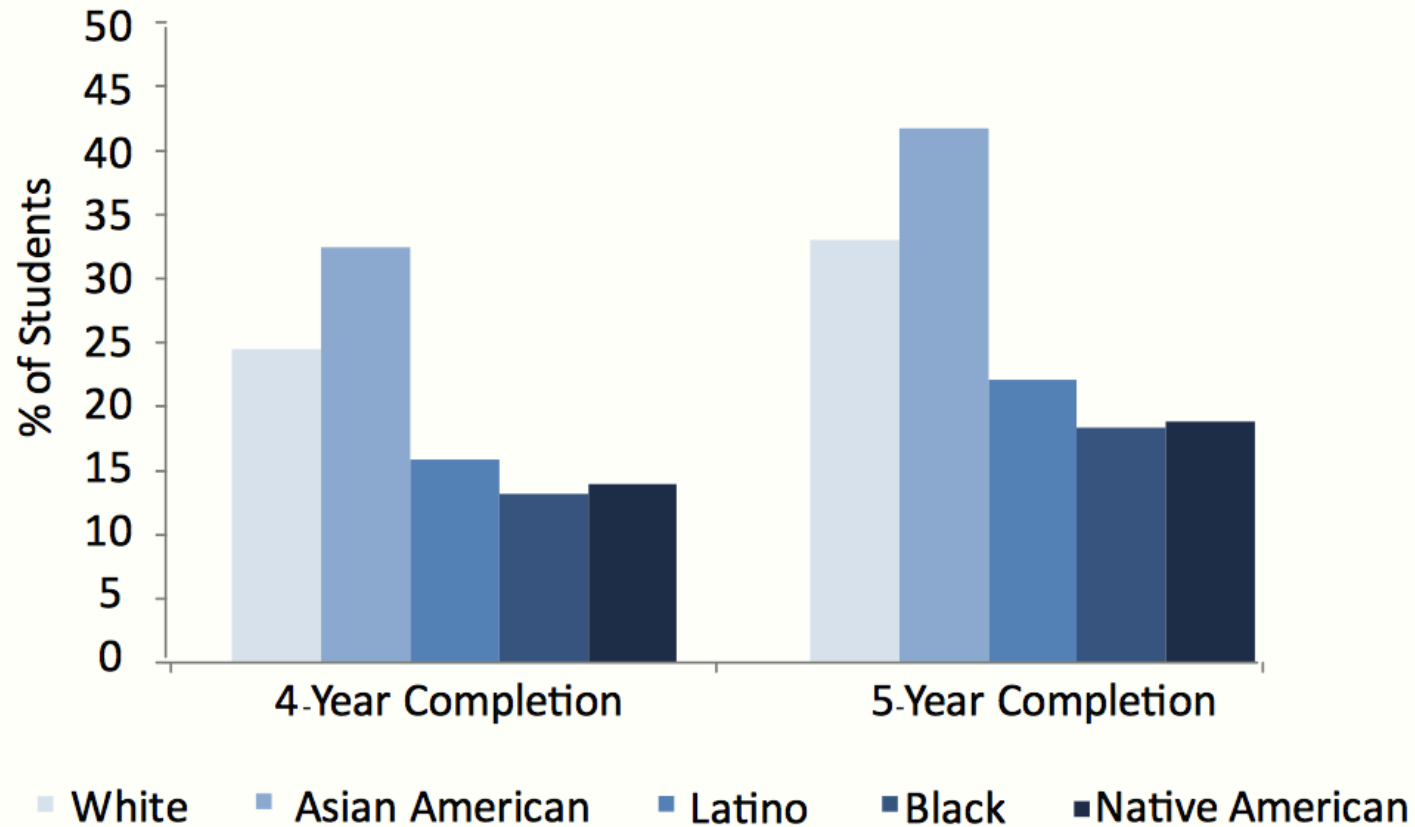
# Results

<b>LLC Model</b>	<b># Cohorts - N</b>	<b>1st Yr GPA Cumulative</b>	<b>1st Yr GPA STEM only</b>	<b>NSCI (STEM) retention</b>
<b>STEP</b>	<b>5 - 112</b>	<b>3.24</b>	<b>2.92</b>	<b>76.3%</b>
<b>TG-LLC lite</b>	<b>3 - 178</b>	<b>3.00</b>	<b>2.55</b>	<b>61.8%</b>
<b>IUSE Science LLC</b>	<b>2 - 47</b>	<b>2.91</b>	<b>2.71</b>	<b>80.1%</b>
<b>IUSE Honors LLC - embedded</b>	<b>2 - 28</b>	<b>3.30</b>	<b>3.11</b>	<b>67.8%</b>
<b>IUSE Science LLC - embedded</b>	<b>1 - 24</b>	<b>3.40</b>	<b>3.01</b>	<b>72.2%</b>
<b>Baseline Year 2009</b>	<b>124</b>	<b>2.98</b>	<b>2.43</b>	<b>54.8%</b>

Note: Retention refers to Year 1 to Year 2 retention as a STEM major

# National STEM Graduation Stats

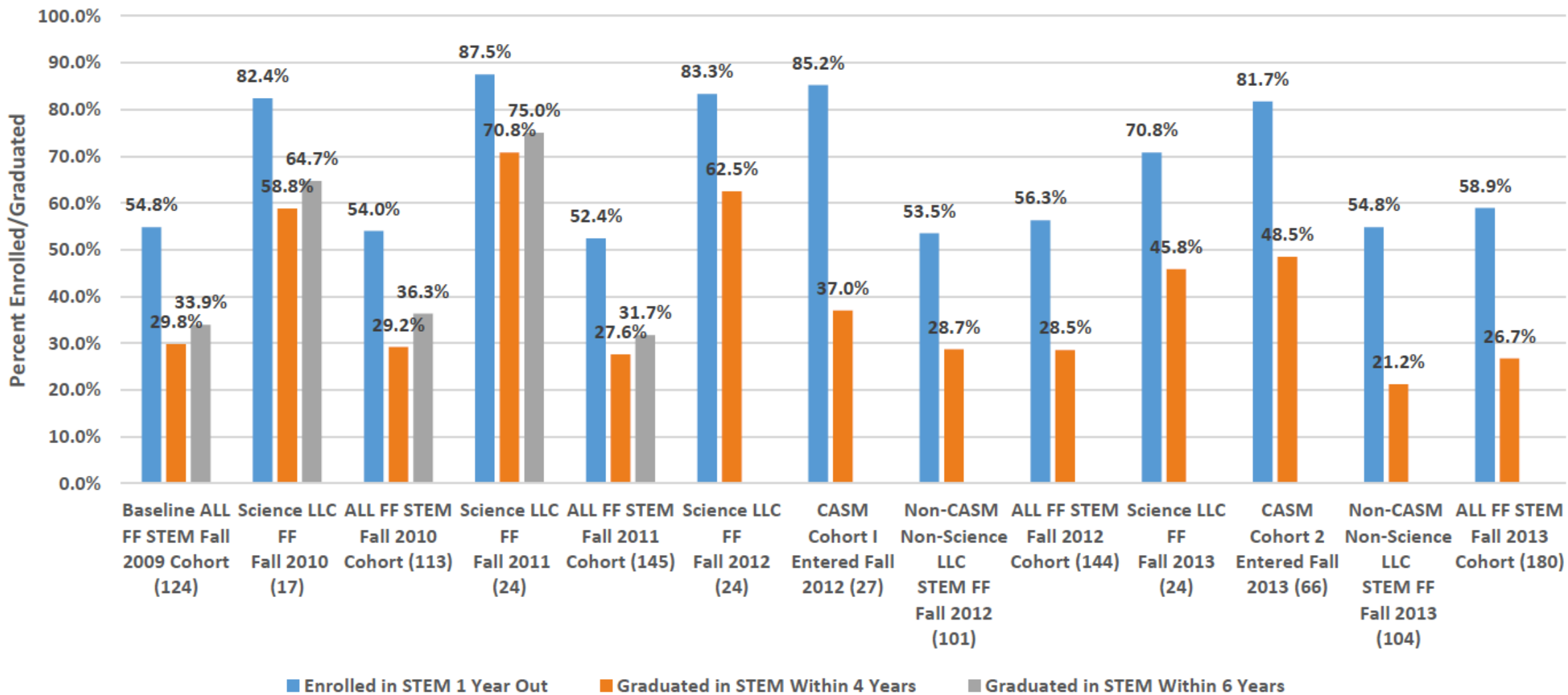
Figure 2. Percentage of 2004 STEM Aspirants Who Completed STEM Degrees in Four and Five Years, by Race/Ethnicity



Higher Education Research Brief, “Degrees of Success: Bachelor’s Degree Completion Rates among Initial STEM Majors”, January 2010, Higher Education Research Institute, UCLA.

# Results

## Graduation Info for STEM, LLC, & CASM Cohorts



# THANK YOU FOR YOUR PARTICIPATION

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<http://kopec.create.stedwards.edu/science-LLC-info/>

# QUESTIONS?

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