



# The Annual Performance Report (APR)

- APR team: *all of us!*
- Annual reporting/compliance requirements (*USDE + CSUN*)
- APR structure and contents = *data-driven*
- CSUN's APR background and approach: *multi-site + mixed methods*
- *Patterns from Year 1* from performance measure data
- Overall findings and recommendations *for project planning*
- *Next steps* in assessment of project objectives and performance measures

# Annual performance report team

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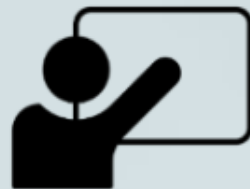
Community college  
project faculty and  
staff and IR office  
staff





# Annual performance report team

Community college  
project faculty and  
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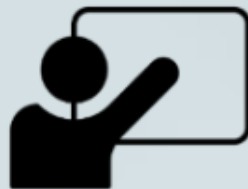
CSUN faculty  
mentors

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Community college  
project faculty and  
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Project PI and  
co-PI at CSUN  
and CECS office  
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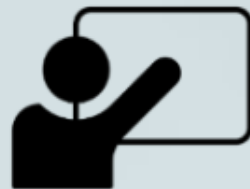


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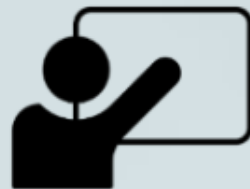
Project PI and  
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staff



CSUN project  
evaluation  
team members

# Annual performance report team

Community college project faculty and staff and IR office staff



CSUN faculty mentors

Project PI and co-PI at CSUN and CECS office staff



CSUN project evaluation team members



CSUN IR office staff

# Annual performance reporting

# Annual performance reporting

## Federal agency compliance

U.S. Department of Education  
requires submission of a report  
(ED 524B) with a project status  
update



*Oct. 1 - Sept. 30*

# Annual performance reporting

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*Oct. 1 - Sept. 30*



# Annual performance reporting

## Federal agency compliance

U.S. Department of Education requires submission of a report (ED 524B) with a project status update



*Oct. 1 - Sept. 30*

## Local project support

APR framework informs decision making and project improvement in implementation (formative) and outcomes (summative)

*Did the program succeed? If so, what program components were most effective?*



# APR report structure

# APR report structure



SECTION A -  
Performance Objectives  
Information and  
Related Performance  
Measures Data

# APR report structure



SECTION A -  
Performance Objectives  
Information and  
Related Performance  
Measures Data

SECTION B -  
Budget Information

# APR report structure



SECTION A -  
Performance Objectives  
Information and  
Related Performance  
Measures Data



SECTION B -  
Budget Information

# APR report structure



SECTION A -  
Performance Objectives  
Information and  
Related Performance  
Measures Data

SECTION B -  
Budget Information



- *Project objective*
- *Performance measure*
- *Performance measure data*
- *Explanation of progress*
  - *Evaluation data sources and methods*
  - *Description of findings*
  - *Description of project activities*
  - *Plans to use performance measure data*



# Data presentation

# Data presentation



*Baseline data + actual performance measure data*

# Data presentation



*Baseline data + actual performance measure data*

*Frequency data on project performance measures:  
percents and counts*





# Data presentation



*Baseline data + actual performance measure data*

*Frequency data on project performance measures:  
percents and counts*

*Organized by project objective!*





# Project objectives

*Objective 1. Improve **transfer** of Hispanic and low-income students in engineering and computer science fields to baccalaureate-granting institutions.*

*Objective 2. Improve **academic achievement** of Hispanic and low-income students in engineering and computer science fields.*

*Objective 3. Enhance **faculty and peer environments** for Hispanic and low-income students in engineering and computer science fields.*

*Objective 4. Improve **career preparation** of Hispanic and low-income students in engineering and computer science fields.*

*Objective 5. Develop **research skills** of Hispanic and low-income students in engineering and computer science fields.*

*Objective 6. Increase **baccalaureate degree completion** of Hispanic and low-income students in engineering and computer science fields.*

# Objectives = focus



1. Transfer success
2. Academic achievement
3. Faculty and peer interaction
4. Career preparation
5. Research skills development
6. Baccalaureate degree completion

# Performance measures = progress

**Performance measure 1a.** The percent of Hispanic and low-income students who participated in grant-supported services or programs who successfully completed gateway courses.

**Performance measure 1b.** The percent of Hispanic and low-income students who participated in grant-supported services or programs in good academic standing.

**Outcome measure 1c.** Improvements in student success (non-cognitive) skills.

**Performance measure 2a.** The number of Hispanic and low-income students participating in grant-funded student support programs or services.

**Outcome measure 2b.** Improvements in self-reports of quality, quantity, and effects of student-faculty and peer-peer interaction.

**Performance measure 3a.** The percentage change, over the five-year grant period, of the number of Hispanic and low-income, full-time STEM field degree-seeking undergraduate students enrolled.

**Performance measure 3b.** The percentage of Hispanic and low-income, first-time STEM field degree-seeking undergraduate students who were in their first year of postsecondary enrollment in the previous year and are enrolled in the current year who remain in a STEM field degree/credential program.

**Outcome measure 4a.** Gains on measures of self-perceptions, attitudes, and skills related to career.

**Outcome measure 5a.** Gains on measures of self-perceptions, attitudes, and skills related to research from URSSA survey and interviews

**Performance measure 6a.** The percentage of Hispanic and low-income students transferring successfully to a four-year institution from a two-year institution and retained in a STEM field major.

**Performance measure 6b.** The percent of Hispanic and low-income STEM field major transfer students on track to complete a STEM field degree within three years from their transfer date.

**Performance measure 6c.** The percent of Hispanic and low-income students who participated in grant-supported services or programs and completed a degree or credential.

# Essence of performance measures

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

**Outcome measure 1c.** Improvements in student success (non-cognitive) skills

**Performance measure 2a.** # project participants

**Outcome measure 2b.** Improvements in self-reports of quality, quantity, and effects of student-faculty and peer-peer interaction

**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM degree fields

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained year to year

**Outcome measure 4a.** Gains on measures of self-perceptions, attitudes, and skills related to career

**Outcome measure 5a.** Gains on measures of self-perceptions, attitudes, and skills related to research

**Performance measure 6a.** % Hispanic and low-income transfer students retained in a STEM degree field

**Performance measure 6b.** % Hispanic and low-income STEM field transfer students on track to complete a STEM field degree within three years

**Performance measure 6c.** % project participants who complete a degree

# Essence of performance measures



1. Transfer success
2. Academic achievement
3. Faculty and peer interaction
4. Career preparation
5. Research skills development
6. Baccalaureate degree completion

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

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**Performance measure 6c.** % project participants who complete a degree

# Connections



# Connections

Objective

# Connections

Objective

Performance measure

# Connections

Objective

Performance measure

1. Transfer success

# Connections

Objective

Performance measure

1. Transfer success

2. Academic achievement

# Connections

## Objective

## Performance measure

1. Transfer success

2. Academic achievement

3. Faculty and peer  
interaction

# Connections

## Objective

## Performance measure

1. Transfer success
2. Academic achievement
3. Faculty and peer interaction
4. Career preparation

# Connections

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1. Transfer success
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# Connections

## Objective

## Performance measure

1. Transfer success
2. Academic achievement
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# Connections

Objective	Performance measure
1. Transfer success	<i><b>Performance measure 1a.</b> % project participants who successfully completed gateway courses <b>Performance measure 1b.</b> % project participants in good academic standing <b>Outcome measure 1c.</b> Improvements in student success (non-cognitive) skills</i>
2. Academic achievement	<i><b>Performance measure 2a.</b> # project participants <b>Outcome measure 2b.</b> Improvements in self-reports of student-faculty and peer-peer interaction</i>
3. Faculty and peer interaction	<i><b>Performance measure 3a.</b> % change of FT enrollment of Hispanic and low-income students in STEM <b>Performance measure 3b.</b> % Hispanic and low-income, first-time STEM degree field students retained</i>
4. Career preparation	<i><b>Outcome measure 4a.</b> Gains on measures of self-perceptions, attitudes, and skills related to career</i>
5. Research skills development	<i><b>Outcome measure 5a.</b> Gains on measures of self-perceptions, attitudes, and skills related to research</i>
6. Baccalaureate degree completion	<i><b>Performance measure 6a.</b> % Hispanic and low-income transfer students retained in a STEM degree field <b>Performance measure 6b.</b> % Hispanic and low-income STEM field transfer students on track to complete a degree <b>Performance measure 6c.</b> % project participants who complete a degree</i>

# Performance measures by institutions

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Community colleges (5)   CSUN (12)

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Community colleges (5) CSUN (12)

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

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**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

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**Performance measure 2a.** # project participants

**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained

*Outcome measures 4a/5a relate to current CC students who participate in summer research!*

*Performance measures 6a/6b relate to CC students who transfer to CSUN!*

**Outcome measure 1c.** Improvements in student success (non-cognitive) skills

**Outcome measure 2b.** Improvements in self-reports of student-faculty and peer-peer interaction

**Outcome measure 4a.** Gains on measures of self-perceptions, attitudes, and skills related to career

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# Evaluation approach



# Evaluation approach

Social and behavioral science research framework

Applied educational evaluation approach

Mixed-methods design

# Evaluation approach

Social and behavioral science research framework  *A systematic, rigorous, empirical investigation of human social life*

Applied educational evaluation approach

Mixed-methods design

# Evaluation approach

Social and behavioral science research framework → *A systematic, rigorous, empirical investigation of human social life*

Applied educational evaluation approach → *Adaption of social and behavioral science research standards to improve educational practice*

Mixed-methods design

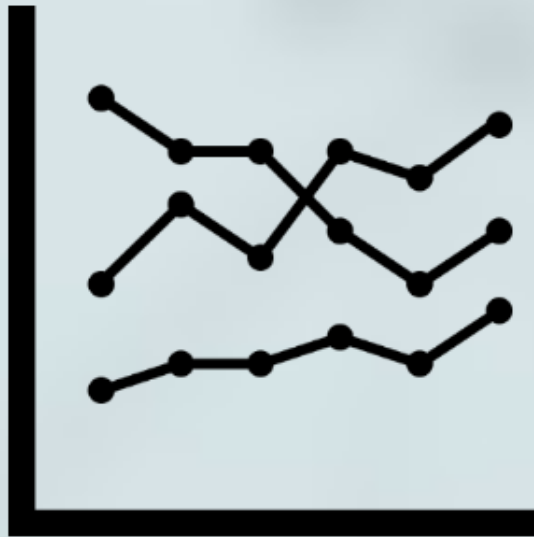
# Evaluation approach

- Social and behavioral science research framework → *A systematic, rigorous, empirical investigation of human social life*
- Applied educational evaluation approach → *Adaption of social and behavioral science research standards to improve educational practice*
- Mixed-methods design → *Quasi-experimental and observational design elements with quantitative and qualitative data collection and analysis methods*

# Mixed methods design

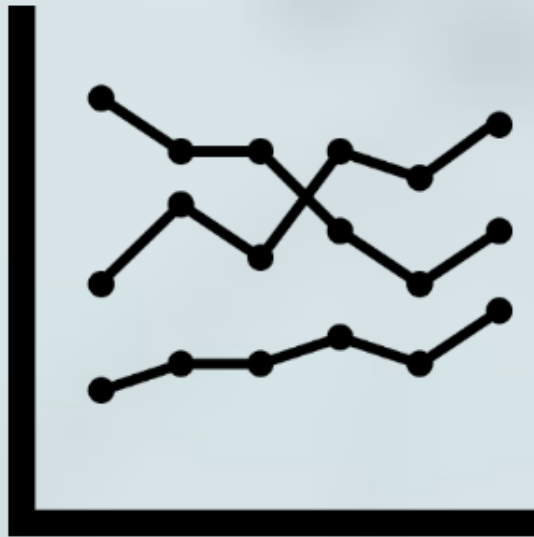
# Mixed methods design

Quasi-experimental design (QED)  
and observational design



# Mixed methods design

Quasi-experimental design (QED)  
and observational design



Case study design

# QED and observational design

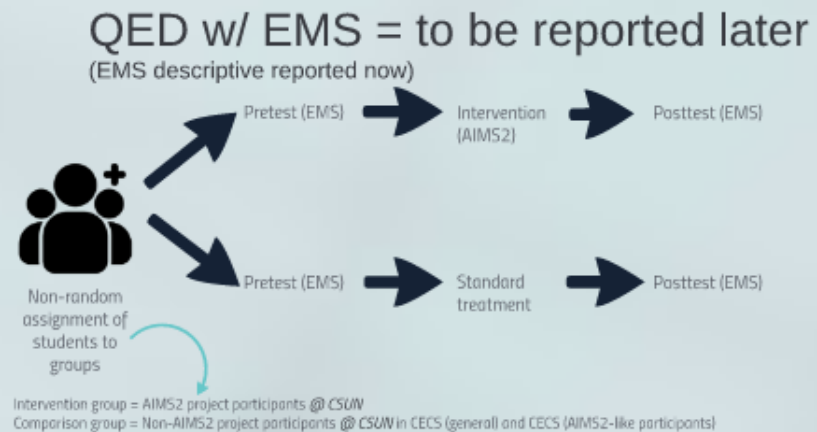
## Observational design

Examine effects of the intervention by observing students who participated in AIMS2 activities during the year.

Assessment of project performance measures using institutional (IR) data, project (participant) data, and survey (EMS and URSSA) data

Competitive Preference Priority (2) USDE HSI-STEM = Moderate evidence of effectiveness

Test students prior to and after participation AND compare to a test of non-participants across multiple sites directly related to target population!





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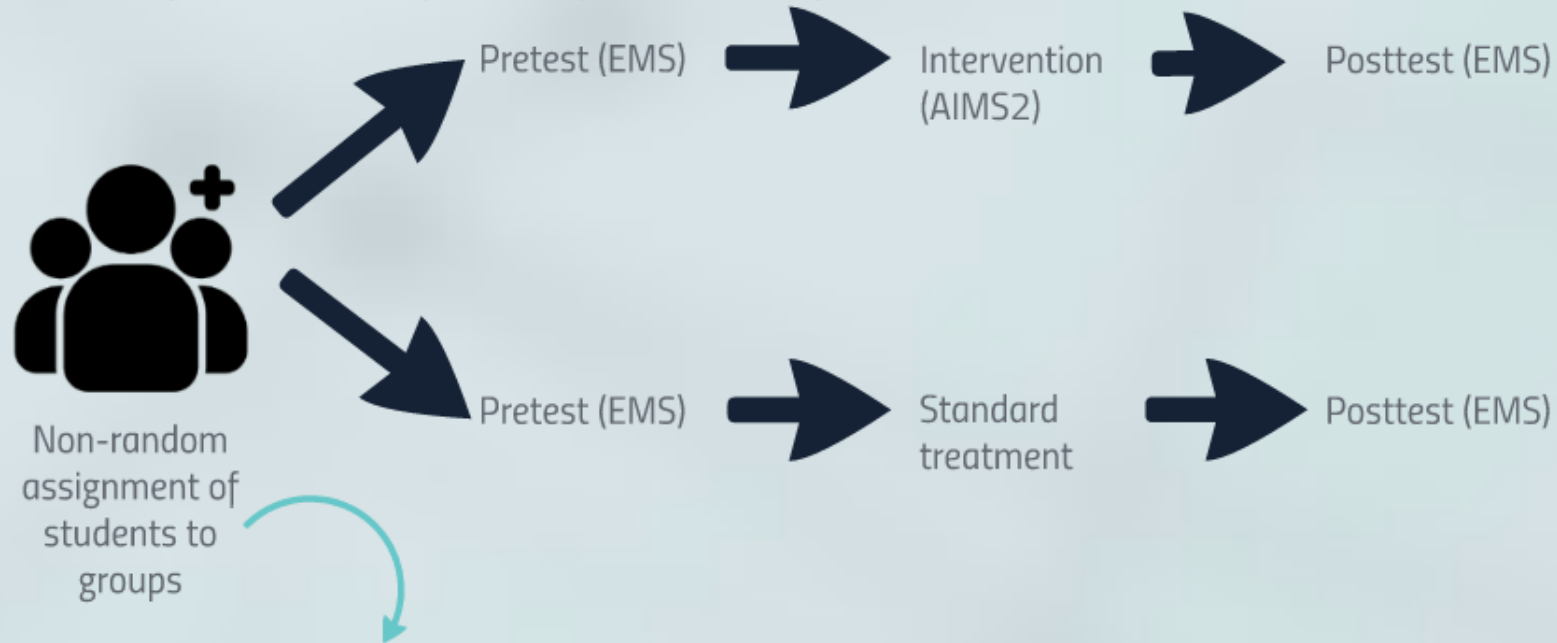
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sites directly related to target population!

**EMS = to be reported later**

# QED w/ EMS = to be reported later

(EMS descriptive reported now)



Intervention group = AIMS2 project participants @ CSUN

Comparison group = Non-AIMS2 project participants @ CSUN in CECS (general) and CECS (AIMS2-like participants)

# QED and observational design

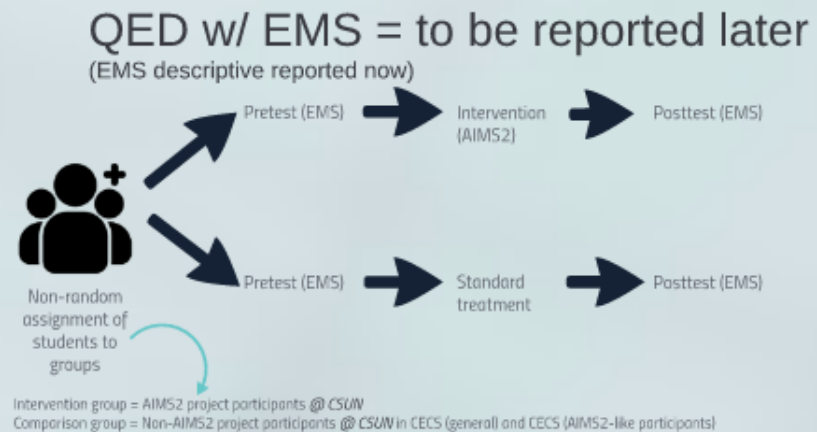
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# Case study design

*Using focus group (textual) data, explore patterns in:*

Student-faculty and peer-peer interaction (outcome measure 2b)



Career preparation (outcome measure 4a)

Research skills development (outcome measure 5a)



# Data sources and research methods

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*AIMS2 student participants at College of the Canyons, Glendale Community College, Moorpark College, Pierce College with project entry in Spring/Summer/Fall 2017 and at CSUN with project entry in Spring 2017 (F-1) or Summer 2017 (T-1)*

*AIMS2 and non-AIMS2 student participants from summer faculty research (Summer 2017)*



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*Institutional and program data from community colleges and CSUN*

*Survey data from EMS and URSSA*

*Future APRs: focus group data*

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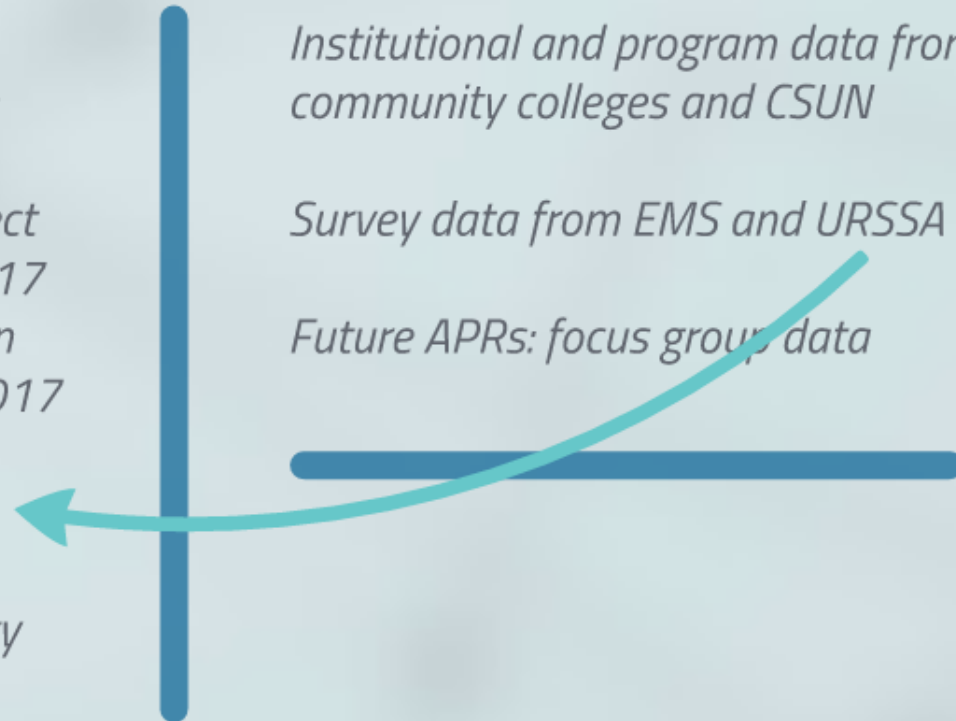
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*AIMS2 and non-AIMS2 student participants from summer faculty research (Summer 2017)*

*Institutional and program data from community colleges and CSUN*

*Survey data from EMS and URSSA*

*Future APRs: focus group data*

*Frequency analysis with institutional, program, and survey data*

# EMS and URSSA data collection



# EMS and URSSA data collection

## EMS = Engineering Majors Survey

*Online pretest survey administration in late Spring/Summer 2017 (F-1) and Fall 2017 (T-1, F-2, T-2) with Year 1 APR survey results including F-1 + T-1 respondents (n=19)*

*EMS attribution: Several sections of this survey are based on the Engineering Majors Survey, developed as part of the NSF-funded Epicenter (2011-16) and co-managed by Stanford University and VentureWell. These sections have been adapted with permission from the survey authors; these sections are used under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BYNC-SA 4.0) license. You can view the license here: <http://creativecommons.org/licenses/by-nc-sa/4.0/>*

*PEPS (in EMS) attribution: Brunhaver, S., Matusovich, H., Sheppard, S., & Streveler, R. (2016). 2016 Professional Engineering Pathways Survey. Available by request.*



# EMS and URSSA data collection

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## URSSA = Undergraduate Research Student Self-Assessment

*Online survey administration in Summer 2017 with community college and CSUN participants who served as research assistants with CSUN faculty mentors, for a total of 14 survey respondents*

*URSSA attribution: Development and testing of URSSA at the University of Colorado-Boulder has been supported by the National Science Foundation through its Divisions of Chemistry and Undergraduate Education, the Biological Sciences Directorate, and the Office of Multidisciplinary Affairs, under grant #CHE-0548488.*

# Links: EMS and APR assessment



# Links: EMS and APR assessment

AIMS2 Objective

# Links: EMS and APR assessment

AIMS2 Objective

AIMS2 Measure

# Links: EMS and APR assessment

AIMS2 Objective

AIMS2 Measure

*EMS Survey Items*

# Links: EMS and APR assessment

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

## AIMS2 Measure

**Outcome Measure 1c (1.3):**  
Improvements in student success

## EMS Survey Items

- *Engineering task self-efficacy (confidence)*

# Links: EMS and APR assessment

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

**Objective 2:** Enhance faculty and peer environments for Hispanic and low-income students in engineering and computer science

## AIMS2 Measure

**Outcome Measure 1c (1.3):**  
Improvements in student success

**Outcome Measure 2b (2.2):**  
*Improvements in self-reports of quality, quantity, and effects of student-faculty and peer-peer interaction*

## EMS Survey Items

- *Engineering task self-efficacy (confidence)*
- *Peer and faculty interactions (frequency)*

# Links: EMS and APR assessment

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

**Objective 2:** Enhance faculty and peer environments for Hispanic and low-income students in engineering and computer science

**Objective 4:** Improve career preparation of Hispanic and low-income students in engineering and computer science fields.

## AIMS2 Measure

**Outcome Measure 1c (1.3):**  
Improvements in student success

**Outcome Measure 2b (2.2):**  
*Improvements in self-reports of quality, quantity, and effects of student-faculty and peer-peer interaction*

**Outcome Measure 4a (4.1):** *Gains on measures of self-perceptions, attitudes, and skills related to career*

## EMS Survey Items

- *Engineering task self-efficacy (confidence)*
- *Peer and faculty interactions (frequency)*
- *Career plans/goals-innovative work (importance)*
- *Career job targets (likelihood)*
- *Job/graduate school likelihood*
- *Career preparedness-PEPS-career preparation*
- *Career preparedness-PEPS-career success*

# URSSA and APR reporting

# URSSA and APR reporting

AIMS2 Objective



# URSSA and APR reporting

AIMS2 Objective

AIMS2 Measure

# URSSA and APR reporting

AIMS2 Objective

AIMS2 Measure

*URSSA Survey Items*

# URSSA and APR reporting

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

## AIMS2 Measure

**Outcome Measure 1c (1.3):**  
Improvements in student success

## URSSA Survey Items

- *On average, how many hours per week did you spend talking with your most recent faculty research mentor?*
- *Work more closely with a particular faculty member.*
- *Ease in working with a faculty research mentor.*
- *Support and guidance from my faculty research mentor.*
- *Support and guidance from other research group members.*

# URSSA and APR reporting

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

**Objective 4:** Improve career preparation of Hispanic and low-income students in engineering and computer science fields.

## AIMS2 Measure

**Outcome Measure 1c (1.3):**  
Improvements in student success

**Outcome Measure 4a (4.1):** *Gains on measures of self-perceptions, attitudes, and skills related to career*

## URSSA Survey Items

- *On average, how many hours per week did you spend talking with your most recent faculty research mentor?*
- *Work more closely with a particular faculty member.*
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- *Support and guidance from my faculty research mentor.*
- *Support and guidance from other research group members.*
  
- *Doing research confirmed my interest in my field of study.*
- *My resume has been enhanced by my research experience.*
- *My research experience has prepared me for graduate school.*
- *My research experience has prepared me for a job.*

# URSSA and APR reporting

## AIMS2 Objective

**Objective 1:** Improve the academic achievement of Hispanic and low-income students in engineering and computer science fields.

**Objective 4:** Improve career preparation of Hispanic and low-income students in engineering and computer science fields.

**Objective 5:** Develop research skills of Hispanic and low-income students in engineering and computer science fields.

## AIMS2 Measure

**Outcome Measure 1c (1.3):** Improvements in student success

**Outcome Measure 4a (4.1):** Gains on measures of self-perceptions, attitudes, and skills related to career

**Outcome measure 5a:** Gains on measures of self-perceptions, attitudes, and skills related to research

## URSSA Survey Items

- On average, how many hours per week did you spend talking with your most recent faculty research mentor?
- Work more closely with a particular faculty member.
- Ease in working with a faculty research mentor.
- Support and guidance from my faculty research mentor.
- Support and guidance from other research group members.
  
- Doing research confirmed my interest in my field of study.
- My resume has been enhanced by my research experience.
- My research experience has prepared me for graduate school.
- My research experience has prepared me for a job.
  
- Confidence in my ability to do research.
- Understanding what everyday research work is like.
- Engage in real-world science research.
- Feel like a scientist.



# Presenting performance measure data

# Presenting performance measure data

*Performance measure 1a.* % project participants who successfully completed gateway courses

*Performance measure 1b.* % project participants in good academic standing

*Performance measure 2a.* # project participants

*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

*Performance measure 3b.* % Hispanic and low-income, first-time STEM degree field students retained



CCs and  
CSUN



# Presenting performance measure data

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

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CCs and  
CSUN



# Presenting performance measure data

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

**Performance measure 2a.** # project participants

**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained

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CCs and  
CSUN



# Presenting performance measure data

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

**Performance measure 2a.** # project participants

**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained

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**Performance measure 6a.** % Hispanic and low-income transfer students retained in a STEM degree field

**Performance measure 6b.** % Hispanic and low-income STEM field transfer students on track to complete a degree

**Performance measure 6c.** % project participants who complete a degree

CCs and  
CSUN



# Presenting performance measure data

*Performance measure 1a.* % project participants who successfully completed gateway courses

*Performance measure 1b.* % project participants in good academic standing

*Performance measure 2a.* # project participants

*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

*Performance measure 3b.* % Hispanic and low-income, first-time STEM degree field students retained

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*Performance measure 6a.* % Hispanic and low-income transfer students retained in a STEM degree field

*Performance measure 6b.* % Hispanic and low-income STEM field transfer students on track to complete a degree

*Performance measure 6c.* % project participants who complete a degree **CSUN only**

# Presenting performance measure data

## CCs and CSUN

*Performance measure 1a.* % project participants who successfully completed gateway courses

*Performance measure 1b.* % project participants in good academic standing

*Performance measure 2a.* # project participants

## IR data

*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

*Performance measure 3b.* % Hispanic and low-income, first-time STEM degree field students retained

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*Performance measure 6a.* % Hispanic and low-income transfer students retained in a STEM degree field

*Performance measure 6b.* % Hispanic and low-income STEM field transfer students on track to complete a degree

*Performance measure 6c.* % project participants who complete a degree **CSUN only**

# Presenting performance measure data

## CCs and CSUN

*Performance measure 1a.* % project participants who successfully completed gateway courses

*Performance measure 1b.* % project participants in good academic standing

*Performance measure 2a.* # project participants

## IR data

*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

*Performance measure 3b.* % Hispanic and low-income, first-time STEM degree field students retained

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*Performance measure 6a.* % Hispanic and low-income transfer students retained in a STEM degree field

*Performance measure 6b.* % Hispanic and low-income STEM field transfer students on track to complete a degree

*Performance measure 6c.* % project participants who complete a degree **CSUN only**

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# Presenting performance measure data

## CCs and CSUN

*Performance measure 1a.* % project participants who successfully completed gateway courses

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*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

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*Performance measure 6a.* % Hispanic and low-income transfer students retained in a STEM degree field

*Performance measure 6b.* % Hispanic and low-income STEM field transfer students on track to complete a degree

*Performance measure 6c.* % project participants who complete a degree **CSUN only**

*Outcome measure 1c.* Improvements in student success (non-cognitive) skills

*Outcome measure 2b.* Improvements in self-reports of student-faculty and peer-peer interaction

*Outcome measure 4a.* Gains on measures of self-perceptions, attitudes, and skills related to career

*Outcome measure 5a.* Gains on measures of self-perceptions, attitudes, and skills related to research



# Presenting performance measure data

## CCs and CSUN

*Performance measure 1a.* % project participants who successfully completed gateway courses

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*Performance measure 2a.* # project participants

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*Performance measure 3a.* % change of FT enrollment of Hispanic and low-income students in STEM

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*Performance measure 6c.* % project participants who complete a degree **CSUN only**

*Outcome measure 1c.* Improvements in student success (non-cognitive) skills

*Outcome measure 2b.* Improvements in self-reports of student-faculty and peer-peer interaction

*Outcome measure 4a.* Gains on measures of self-perceptions, attitudes, and skills related to career

*Outcome measure 5a.* Gains on measures of self-perceptions, attitudes, and skills related to research

## EMS and URSSA survey data



# Presenting performance measure data

## CCs and CSUN

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

**Performance measure 2a.** # project participants

## IR data

**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained

**Performance measure 6a.** % Hispanic and low-income transfer students retained in a STEM degree field

**Performance measure 6b.** % Hispanic and low-income STEM field transfer students on track to complete a degree

**Performance measure 6c.** % project participants who complete a degree **CSUN only**

**Outcome measure 1c.** Improvements in student success (non-cognitive) skills

**Outcome measure 2b.** Improvements in self-reports of student-faculty and peer-peer interaction

**Outcome measure 4a.** Gains on measures of self-perceptions, attitudes, and skills related to career

**Outcome measure 5a.** Gains on measures of self-perceptions, attitudes, and skills related to research

## EMS and URSSA survey data

# Presenting performance measure data

## CCs and CSUN

**Performance measure 1a.** % project participants who successfully completed gateway courses

**Performance measure 1b.** % project participants in good academic standing

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**Performance measure 3a.** % change of FT enrollment of Hispanic and low-income students in STEM

**Performance measure 3b.** % Hispanic and low-income, first-time STEM degree field students retained

**Performance measure 6a.** % Hispanic and low-income transfer students retained in a STEM degree field

**Performance measure 6b.** % Hispanic and low-income STEM field transfer students on track to complete a degree

**Performance measure 6c.** % project participants who complete a degree **CSUN only**

**Outcome measure 1c.** Improvements in student success (non-cognitive) skills

**Outcome measure 2b.** Improvements in self-reports of student-faculty and peer-peer interaction

**Outcome measure 4a.** Gains on measures of self-perceptions, attitudes, and skills related to career

**Outcome measure 5a.** Gains on measures of self-perceptions, attitudes, and skills related to research

## EMS and URSSA survey data

**"AIMS2"**

# The "Big Picture"

*Summary-Level Performance Measure Data*

# The "Big Picture": Standardized Measures

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*1a. AIMS2 students'  
gateway course  
success: 71%-100%*



# The "Big Picture": Standardized Measures

*1a. AIMS2 students' gateway course success: 71%-100%*



*1b. AIMS2 students in good academic standing: 88%-100%*



# The "Big Picture": Standardized Measures

*1a. AIMS2 students' gateway course success: 71%-100%*



*1b. AIMS2 students in good academic standing: 88%-100%*



*2a. Number of AIMS2 students: Range of 10-123 with 256 total*



# The "Big Picture": Standardized Measures

*1a. AIMS2 students' gateway course success: 71%-100%*



*1b. AIMS2 students in good academic standing: 88%-100%*



*2a. Number of AIMS2 students: Range of 10-123 with 256 total*



*3a. FT student enrollment in STEM:  
CCs = 1558  
CSUN = 1679*



# The "Big Picture": Standardized Measures

*1a. AIMS2 students' gateway course success: 71%-100%*



*1b. AIMS2 students in good academic standing: 88%-100%*



*2a. Number of AIMS2 students: Range of 10-123 with 256 total*



*3a. FT student enrollment in STEM:  
CCs = 1558  
CSUN = 1679*

*3b. First-time student retention in STEM: 55%-90%*



# The "Big Picture": Standardized Measures

1a. AIMS2 students' gateway course success: 71%-100%



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3a. FT student enrollment in STEM:  
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3b. First-time student retention in STEM: 55%-90%



6a. Transfer student retention in STEM @ CSUN: Increase from 90% to 93%



# The "Big Picture": Standardized Measures

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3a. FT student enrollment in STEM:  
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CSUN = 1679

3b. First-time student retention in STEM: 55%-90%



6a. Transfer student retention in STEM @ CSUN: Increase from 90% to 93%



6b. Transfer students on track to graduate in STEM @ CSUN: Increase from 35% to 36%



# The "Big Picture": Standardized Measures

1a. AIMS2 students' gateway course success: 71%-100%



1b. AIMS2 students in good academic standing: 88%-100%



2a. Number of AIMS2 students: Range of 10-123 with 256 total



3a. FT student enrollment in STEM:  
CCs = 1558  
CSUN = 1679

3b. First-time student retention in STEM: 55%-90%



6a. Transfer student retention in STEM @ CSUN: Increase from 90% to 93%



6b. Transfer students on track to graduate in STEM @ CSUN: Increase from 35% to 36%



6c. AIMS2 students' degree completion: Stay tuned for data in a future report!



# "Big Picture": student success skills development (1c)



*A greater percentage of EMS respondents reported feeling **very or extremely confident** in designing a new product or project to meet specified requirements and troubleshooting a failure of a technical component or system!*

*But a lower percentage of EMS respondents reported feeling the same about developing and integrateing component sub-systems to build a complete system or product.*

# **"Big Picture": student-faculty and peer-peer interaction (2b)**

# "Big Picture": student-faculty and peer-peer interaction (2b)



*Student-faculty  
interaction  
URSSA survey  
respondents  
reported strong  
satisfaction with  
research  
interaction with  
faculty*

# "Big Picture": student-faculty and peer-peer interaction (2b)



*Student-faculty  
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reported strong  
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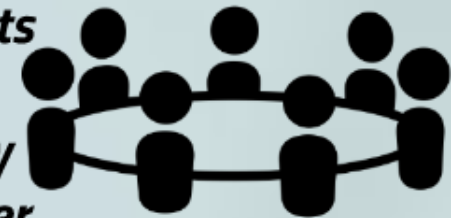


# "Big Picture": student-faculty and peer-peer interaction (2b)



*Student-faculty interaction*  
*URSSA survey respondents reported strong satisfaction with research interaction with faculty*

*Peer-peer interaction*  
*EMS survey respondents reported strong interaction with faculty and peers—but a greater percentage shared strong interaction with peers than faculty on the same activities—course topics and career-related questions*



# **"Big Picture": career preparation (4a) and research skills development (5a)**

# "Big Picture": career preparation (4a) and research skills development (5a)

## *Career preparation*

***Overall high percentage of EMS survey respondents reporting work will involve engineering and graduate school—with a greater percentage reporting importance of innovative or entrepreneurial activities and career gains from research with faculty (URSSA)***



# "Big Picture": career preparation (4a) and research skills development (5a)

## *Career preparation*

***Overall high percentage of EMS survey respondents reporting work will involve engineering and graduate school—with a greater percentage reporting importance of innovative or entrepreneurial activities and career gains from research with faculty (URSSA)***

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# "Big Picture": career preparation (4a) and research skills development (5a)

## *Career preparation*

***Overall high percentage of EMS survey respondents reporting work will involve engineering and graduate school—with a greater percentage reporting importance of innovative or entrepreneurial activities and career gains from research with faculty (URSSA)***



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## *Research skills development*

***URSSA survey respondents reported strong gains in research confidence, identity as researchers, and experiences as researchers from research work with faculty***

# Performance Measure Data in Detail

## Performance measures



**Performance measure 1a.** successful gateway course completion (AIMS2 students)

**Performance measure 1b.** good academic standing (AIMS2 students)

**Outcome measure 1c.** Improvements in student success skills (AIMS2 students)

**Performance measure 2a.** # project participants (AIMS2 students)

**Outcome measure 2b.** Improvements in student-faculty and peer-peer interaction (AIMS2 students)

**Performance measure 3a.** FT student enrollment in STEM (all Hispanic and low-income students)

**Performance measure 3b.** First-time STEM degree field student retention (all Hispanic and low-income students)

**Outcome measure 4a.** Gains skills related to career (AIMS2 students)

**Outcome measure 5a.** Gains skills related to research (AIMS2 students)

**Performance measure 6a.** transfer student retention in STEM (all Hispanic and low-income students)

**Performance measure 6b.** transfer students on track to complete a STEM field degree within three years (all Hispanic and low-income students)

**Performance measure 6c.** degree completion (AIMS2 students)

# **Academic achievement (1a): gateway course success for AIMS2 students**



# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

*Fall 2016 (CSUN) OR Spring 2017 (CCs) successful gateway course completion matched to project participants (baseline data) and Spring 2017 (CSUN) successful gateway course completion matched to project participants (growth data)*

# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

*Fall 2016 (CSUN) OR Spring 2017 (CCs) successful gateway course completion matched to project participants (baseline data) and Spring 2017 (CSUN) successful gateway course completion matched to project participants (growth data)*



# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

*Fall 2016 (CSUN) OR Spring 2017 (CCs) successful gateway course completion matched to project participants (baseline data) and Spring 2017 (CSUN) successful gateway course completion matched to project participants (growth data)*

*@ College of the Canyons: 78% (35/45)*

*BIOSCI, CMPNET, MATH, PHYSIC*

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*% project participants who successfully completed gateway courses*

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*@ Glendale Community College: 100% (2/2)*

*BIOSCI, CMPNET, MATH, PHYSIC*

*CS/IS, Engineering, Math, Physics*

# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

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*@ College of the Canyons: 78% (35/45)*

*@ Glendale Community College: 100% (2/2)*

*@ Moorpark College: 71% (39/55)*

*BIOSCI, CMPNET, MATH, PHYSIC*

*CS/IS, Engineering, Math, Physics*

*ENGR, PHYS, MATH, CHEM*

# Academic achievement (1a): gateway course success for AIMS2 students

*% project participants who successfully completed gateway courses*

*Fall 2016 (CSUN) OR Spring 2017 (CCs) successful gateway course completion matched to project participants (baseline data) and Spring 2017 (CSUN) successful gateway course completion matched to project participants (growth data)*

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*@ Moorpark College: 71% (39/55)*

*@ Pierce College: 79%*

*BIOSCI, CMPNET, MATH, PHYSIC*

*CS/IS, Engineering, Math, Physics*

*ENGR, PHYS, MATH, CHEM*

*CoSci, Math, Physics*

# Academic achievement (1a): gateway course success for AIMS2 students

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*@ Glendale Community College: 100% (2/2)*

*@ Moorpark College: 71% (39/55)*

*@ Pierce College: 79%*

*@ CSUN: 89% (115/129)*

*BIOSCI, CMPNET, MATH, PHYSIC*

*CS/IS, Engineering, Math, Physics*

*ENGR, PHYS, MATH, CHEM*

*CoSci, Math, Physics*

*A, B, C, or Credit in COMP 110, CIT 160, ME 209, MSE 227, MATH 150A/L, AM 316, CE 340, ME 370, MSE 304, ECE 340/L, ECE 350, ECE 320/L, MSE 362, MSE 402, COMP 333, COMP 322/L, COMP 380/L, CIT 270/L, CIT 360 + CE 240, ECE 240*



# **Academic achievement (1b): AIMS2 students in good academic standing**

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*



# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

*@ College of the Canyons: 98% (64/65)*

*term cumulative COC GPA of 2.0 or higher*

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

*@ College of the Canyons: 98% (64/65)*

*@ Glendale Community College: 100% (10/10)*

*term cumulative COC GPA of 2.0 or higher*

*term: absence of probation = cum GPA < 2.0 and/or at least 50% of units NP, Inc. or With.*

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

*@ College of the Canyons: 98% (64/65)*

*@ Glendale Community College: 100% (10/10)*

*@ Moorpark College: 88% (22/25)*

*term cumulative COC GPA of 2.0 or higher*

*term: absence of probation = cum GPA < 2.0 and/or at least 50% of units NP, Inc. or With.*

*good academic standing*

# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

*@ College of the Canyons: 98% (64/65)*

*@ Glendale Community College: 100% (10/10)*

*@ Moorpark College: 88% (22/25)*

*@ Pierce College: 93% (114/123)*

*term cumulative COC GPA of 2.0 or higher*

*term: absence of probation = cum GPA < 2.0 and/or at least 50% of units NP, Inc. or With.*

*good academic standing*

*cumulative GPA of 2.0 or above*



# Academic achievement (1b): AIMS2 students in good academic standing

*% project participants in good academic standing*

*Fall 2016 (CSUN) academic good standing matched to project participants (baseline data: CSUN) and Spring 2017 (CCs) academic good standing matched to project participants (baseline data: CCs)/growth data: CSUN)*

*@ College of the Canyons: 98% (64/65)*

*@ Glendale Community College: 100% (10/10)*

*@ Moorpark College: 88% (22/25)*

*@ Pierce College: 93% (114/123)*

*@ CSUN: 91% (31/34)*

*term cumulative COC GPA of 2.0 or higher*

*term: absence of probation = cum GPA < 2.0 and/or at least 50% of units NP, Inc. or With.*

*good academic standing*

*cumulative GPA of 2.0 or above*

*cumulative total GPA + CSUN GPA of 2.0 or higher*

**Academic  
achievement  
(1c): AIMS2  
student  
success skills  
development**

**Academic  
achievement  
(1c): AIMS2  
student  
success skills  
development**

*Improvements in student success (non-cognitive)  
skills among project participants*

**Academic  
achievement  
(1c): AIMS2  
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success skills  
development**

*Improvements in student success (non-cognitive)  
skills among project participants*

EMS Survey Items

# Academic achievement (1c): AIMS2 student success skills development

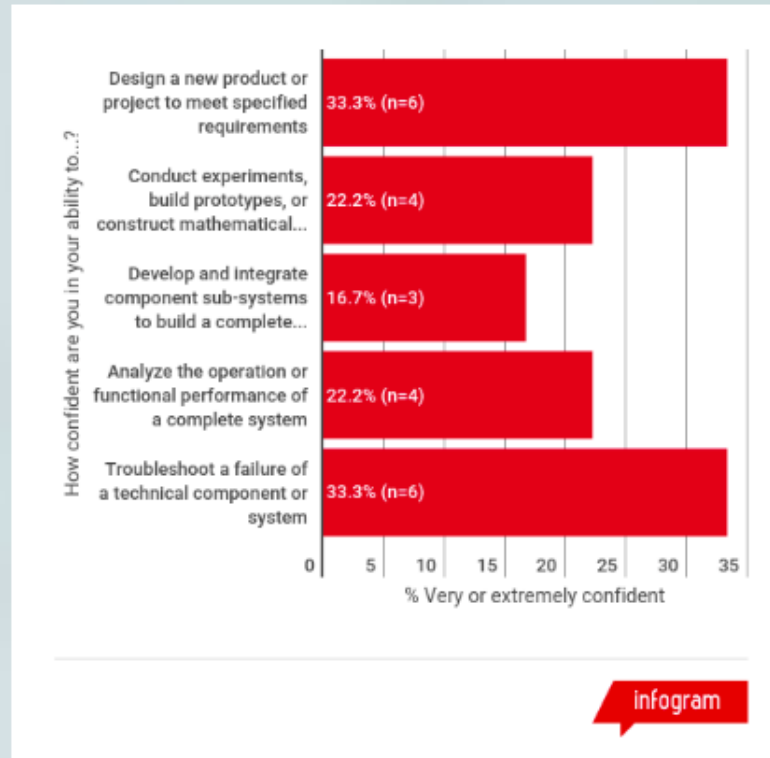
*Improvements in student success (non-cognitive)  
skills among project participants*

EMS Survey Items *Engineering task self-efficacy*

# Academic achievement (1c): AIMS2 student success skills development

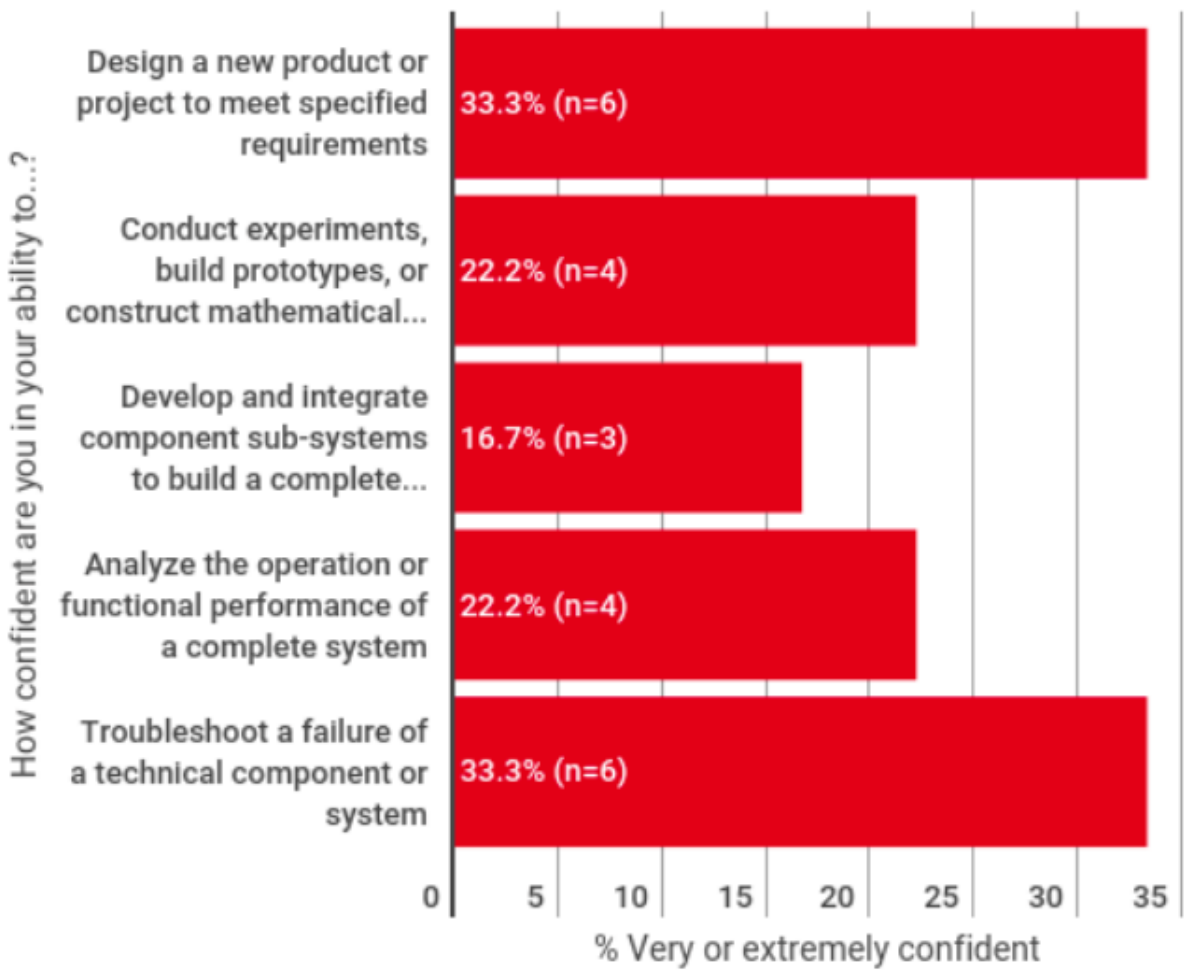
## Improvements in student success (non-cognitive) skills among project participants

EMS Survey Items *Engineering task self-efficacy*



Conduct experiments, build prototypes, or construct mathematical models to develop or evaluate a design

Develop and integrate component sub-systems to build a complete system or product



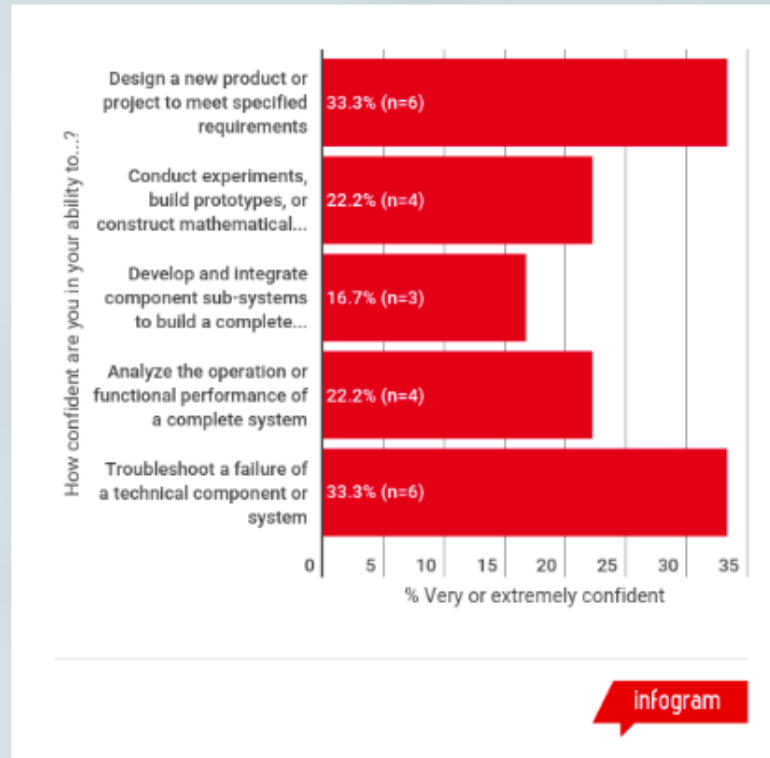
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# Academic achievement (1c): AIMS2 student success skills development

## Improvements in student success (non-cognitive) skills among project participants

EMS Survey Items *Engineering task self-efficacy*



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Develop and integrate component sub-systems to build a complete system or product



# Project participants (2a): Number of AIMS2 students



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*

*@ College of the Canyons: 65 (vs. Year 1 IPR: 23)*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*

*@ College of the Canyons: 65 (vs. Year 1 IPR: 23)*

*@ Glendale Community College: 10 (vs. Year 1 IPR: 10)*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*

*@ College of the Canyons: 65 (vs. Year 1 IPR: 23)*

*@ Glendale Community College: 10 (vs. Year 1 IPR: 10)*

*@ Moorpark College: 25 (vs. Year 1 IPR: 25)*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*

*@ College of the Canyons: 65 (vs. Year 1 IPR: 23)*

*@ Glendale Community College: 10 (vs. Year 1 IPR: 10)*

*@ Moorpark College: 25 (vs. Year 1 IPR: 25)*

*@ Pierce College: 123 (vs. Year 1 IPR: 230)*



# Project participants (2a): Number of AIMS2 students

*Headcount of project participants*

*Spring 2017 (CSUN/FTF-1 and CCs) and Summer 2017 (CSUN/FTT-1) program data (baseline data)*

*@ College of the Canyons: 65 (vs. Year 1 IPR: 23)*

*@ Glendale Community College: 10 (vs. Year 1 IPR: 10)*

*@ Moorpark College: 25 (vs. Year 1 IPR: 25)*

*@ Pierce College: 123 (vs. Year 1 IPR: 230)*

*@ CSUN: 33 (FTF-1: 13, FTT-1: 20) vs. Year 1 IPR: 17*





# In-depth: CSUN cohort participants

Sex	x	%
Male	24	72.7
Female	9	27.3
Other	0	0
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Pell Grant Recipient	x	%
Yes	27	81.8
No	3	9.1
Subsidized Loan	2	6.1
Other	1	3
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Racial/Ethnic Identification	x	%
American Indian or Alaska Native	0	0
Asian or Asian American	6	18.2
Black or African American	3	9.1
Hispanic or Latino/a	18	54.5
Native Hawaiian or Pacific Islander	0	0
White	4	12.1
Not Specific	0	0
Other	2	6.1
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Sex	x	%
Male	24	72.7
Female	9	27.3
Other	0	0
TOTAL	33	100

The logo for infogram, featuring the word "infogram" in white lowercase letters inside a red speech bubble shape.

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infogram

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infogram

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Hispanic or Latino/a	18	54.5
Native Hawaiian or Pacific Islander	0	0
White	4	12.1
Not Specific	0	0
Other	2	6.1
<b>TOTAL</b>	<b>33</b>	<b>100</b>

# In-depth: CSUN cohort participants

Sex	x	%
Male	24	72.7
Female	9	27.3
Other	0	0
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Pell Grant Recipient	x	%
Yes	27	81.8
No	3	9.1
Subsidized Loan	2	6.1
Other	1	3
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Racial/Ethnic Identification	x	%
American Indian or Alaska Native	0	0
Asian or Asian American	6	18.2
Black or African American	3	9.1
Hispanic or Latino/a	18	54.5
Native Hawaiian or Pacific Islander	0	0
White	4	12.1
Not Specific	0	0
Other	2	6.1
<b>TOTAL</b>	<b>33</b>	<b>100</b>

infogram

Pell Grant Recipient	x	%
Yes	27	81.8
No	3	9.1
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infogram

# **Project participants (2b): AIMS2 student-faculty and peer-peer interaction**

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*Quality, quantity, and effects of student-faculty and peer-peer interaction among project participants*



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EMS Survey Items

- *Peer and faculty interactions*

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*Quality, quantity, and effects of student-faculty and peer-peer interaction among project participants*

EMS Survey Items

- *Peer and faculty interactions*



- *Discussed the following with faculty members OR students in the past year (frequency):*  
Course topics and assignments (not during class or section time)  
Your professional options with an engineering degree  
New design or business ideas

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*Quality, quantity, and effects of student-faculty and peer-peer interaction among project participants*

EMS Survey Items

- *Peer and faculty interactions*




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URSSA Survey Items


# Project participants (2b): AIMS2 student-faculty and peer-peer interaction

*Quality, quantity, and effects of student-faculty and peer-peer interaction among project participants*

## EMS Survey Items

- *Peer and faculty interactions*
  - *Discussed the following with faculty members OR students in the past year (frequency):*
    - Course topics and assignments (not during class or section time)
    - Your professional options with an engineering degree
    - New design or business ideas
- 

## URSSA Survey Items

- *On average, how many hours per week did you spend talking with your most recent faculty research mentor?*
  - *I WANTED TO DO RESEARCH TO: (select all that apply):*
    - Work more closely with a particular faculty member
- 

# Project participants (2b): AIMS2 student-faculty and peer-peer interaction

*Quality, quantity, and effects of student-faculty and peer-peer interaction among project participants*

## EMS Survey Items

- *Peer and faculty interactions*

- *Discussed the following with faculty members OR students in the past year (frequency):*  
Course topics and assignments (not during class or section time)  
Your professional options with an engineering degree  
New design or business ideas

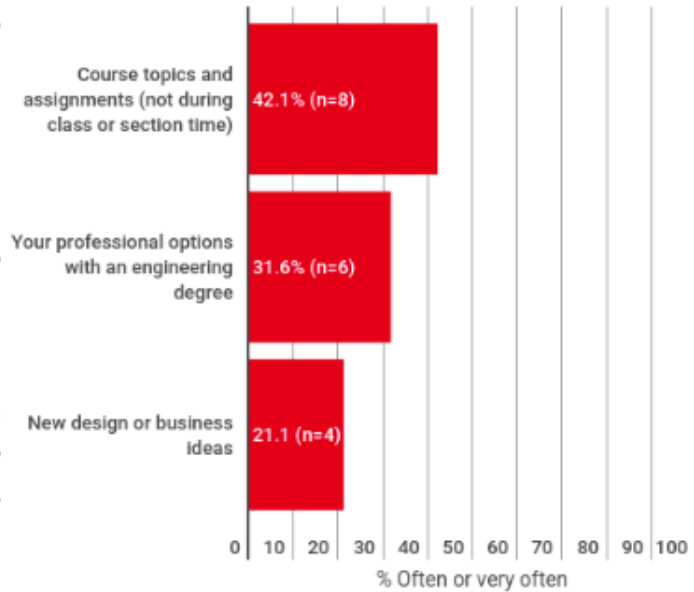
## URSSA Survey Items

- *On average, how many hours per week did you spend talking with your most recent faculty research mentor?*
- *I WANTED TO DO RESEARCH TO: (select all that apply):*  
*Work more closely with a particular faculty member*

- *How satisfied were you with the following aspects of the AIMS2 research program?*  
*Ease in working with a faculty research mentor.*  
*Support and guidance from my faculty research mentor.*  
*Support and guidance from other research group members.*

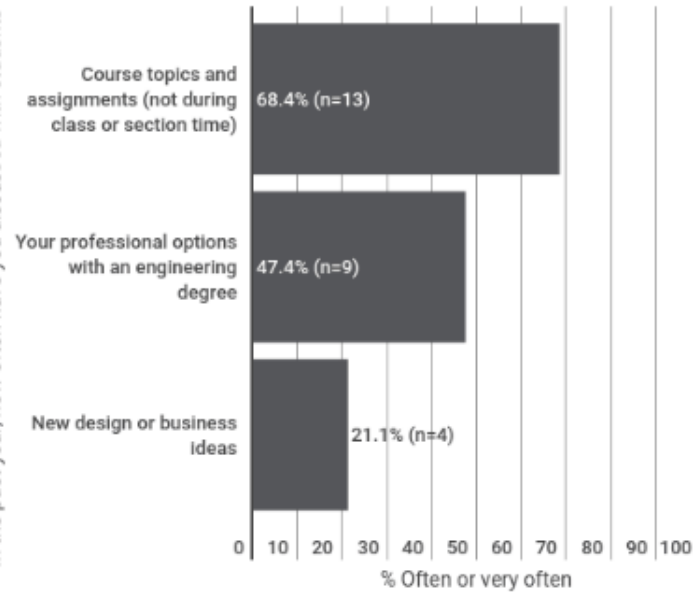
# Interactions with faculty and peers (EMS)

In the past year, how often have you discussed with faculty?



Infogram

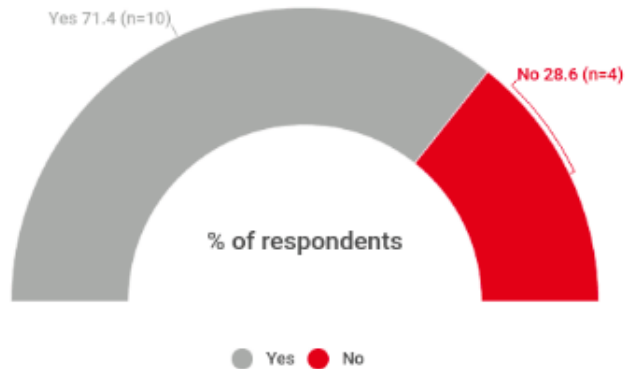
In the past year, how often have you discussed with students?



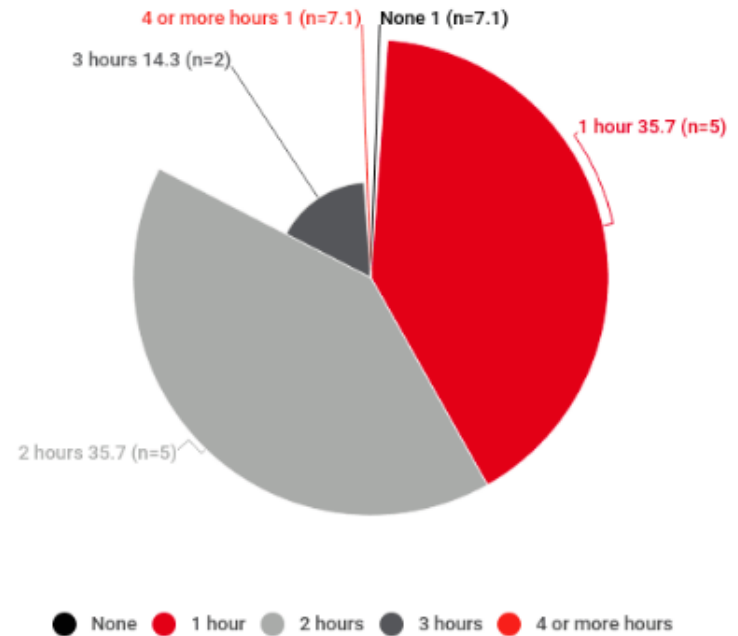
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# Research interaction with faculty (URSSA)

I WANTED TO DO RESEARCH TO: work more closely with a particular faculty member



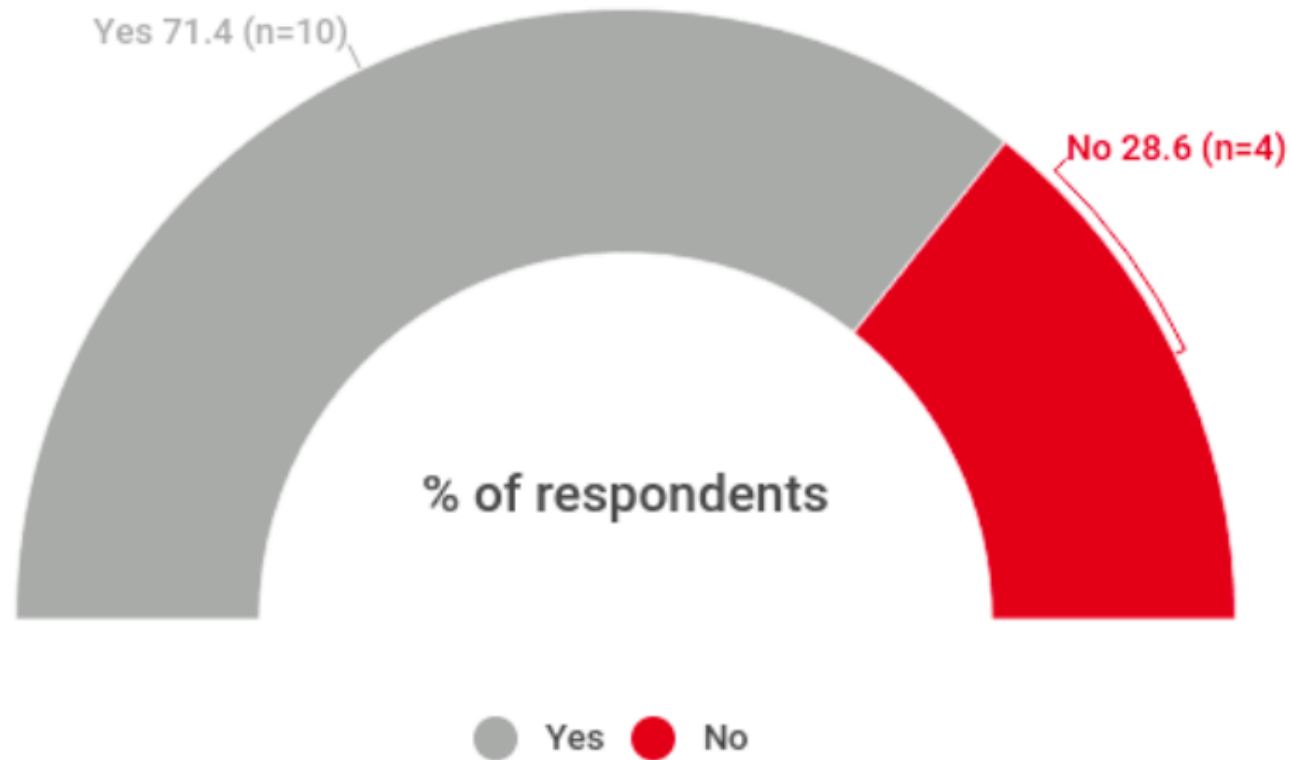
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On average, how many hours per week did you spend talking with your most recent faculty research mentor?

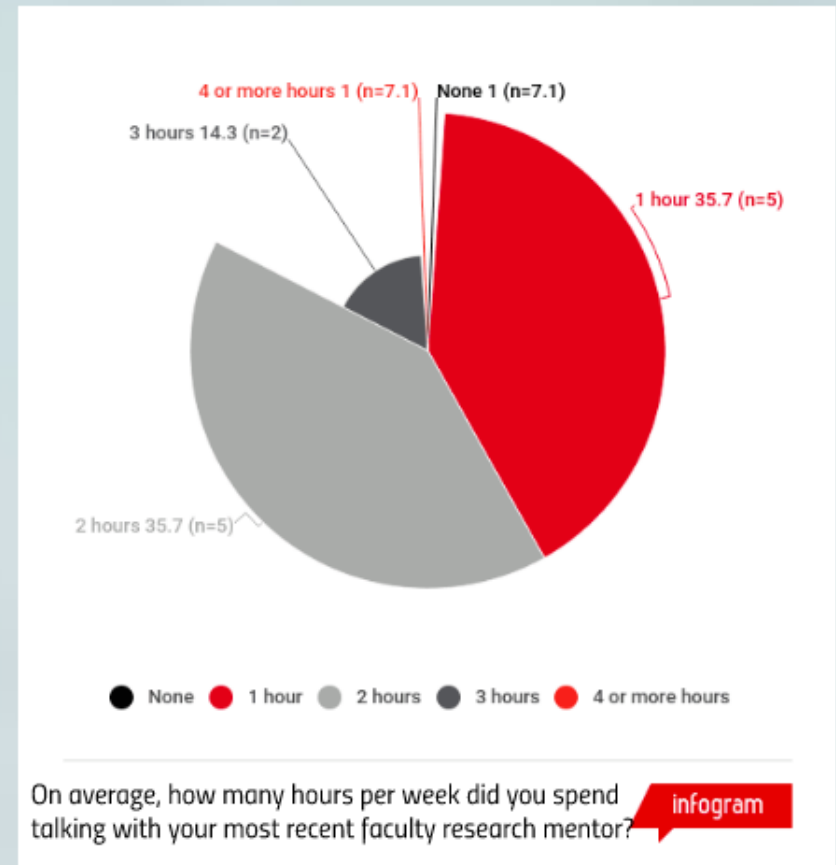
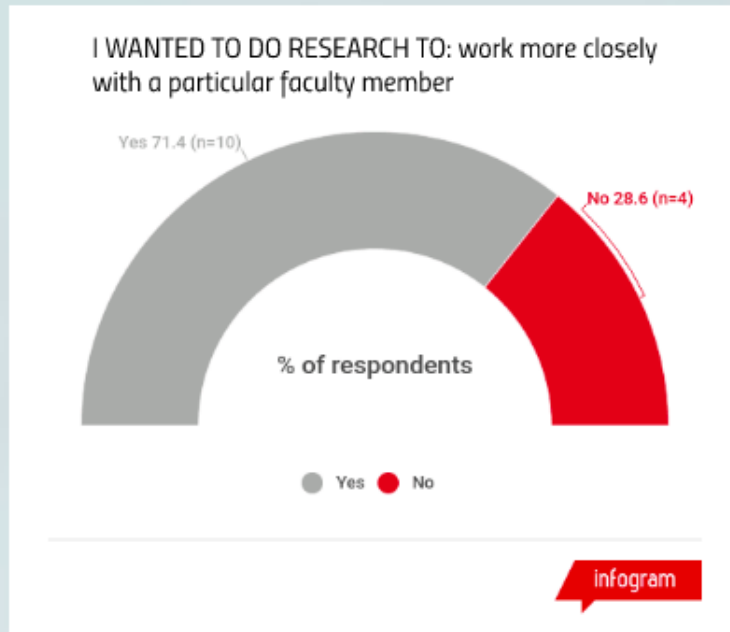
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I WANTED TO DO RESEARCH TO: work more closely with a particular faculty member





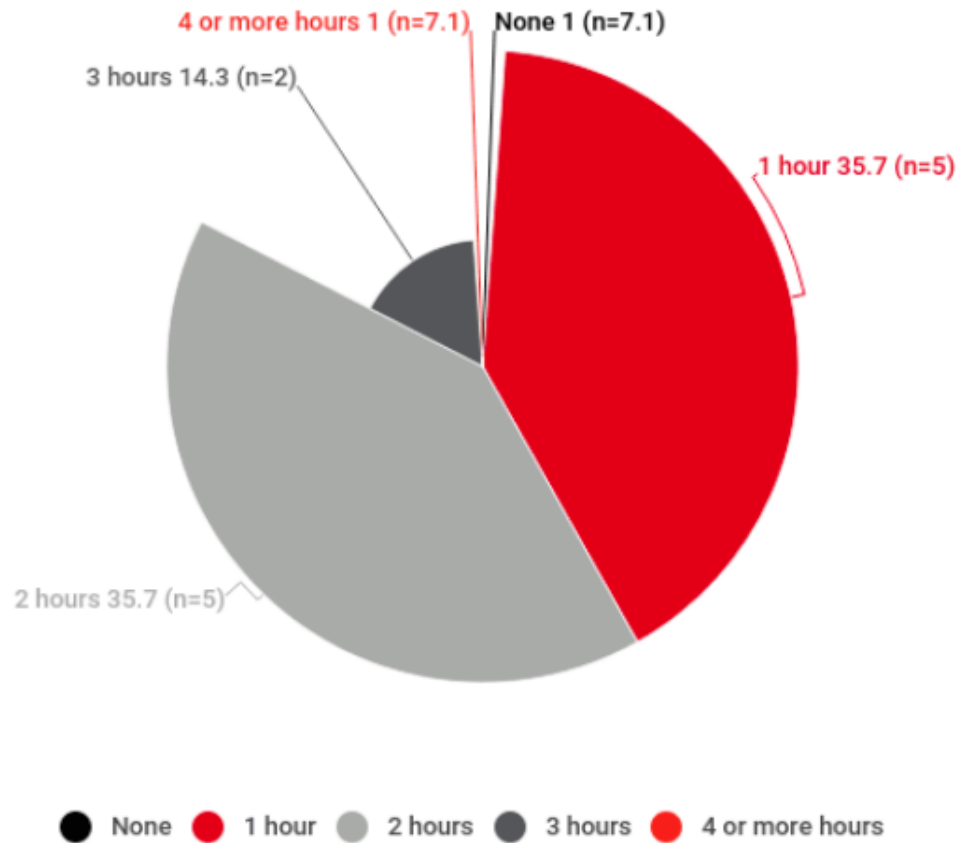
# Research interaction with faculty (URSSA)



# ACTION RSSA)

sely

28.6 (n=4)

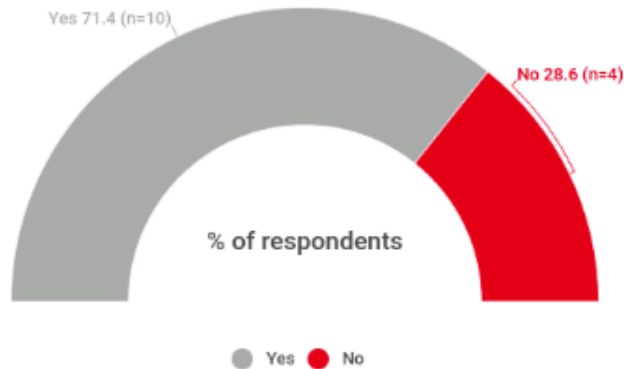


On average, how many hours per week did you spend talking with your most recent faculty research mentor?

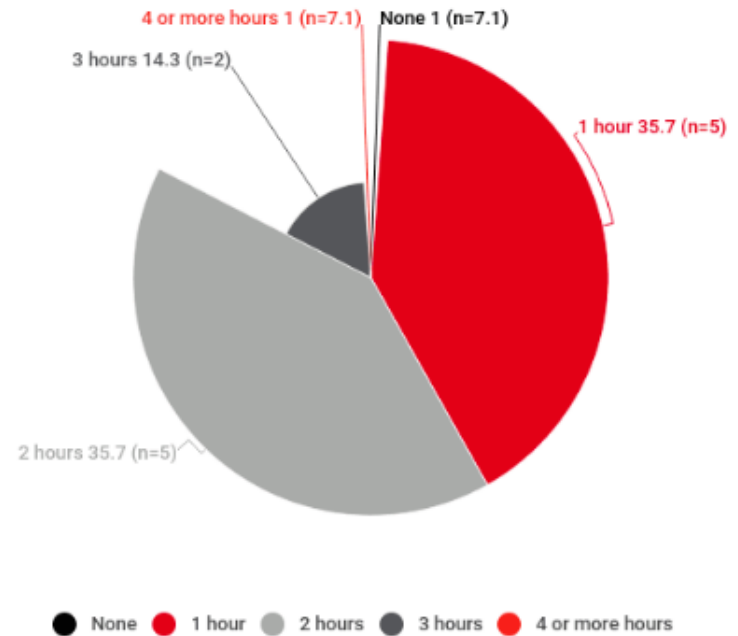
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# Research interaction with faculty (URSSA)

I WANTED TO DO RESEARCH TO: work more closely with a particular faculty member



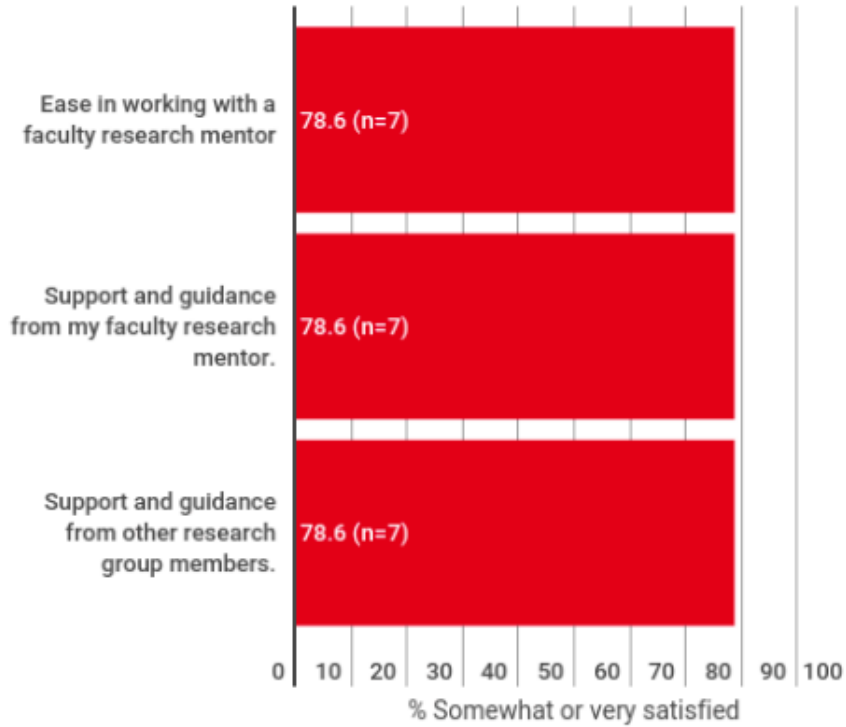
infogram



On average, how many hours per week did you spend talking with your most recent faculty research mentor?

infogram

How satisfied were you with the AIMS2 research program?



# Satisfaction with research interaction with faculty (URSSA)

# **STEM enrollment (3a): FT student enrollment in STEM fields**

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*% change of FT enrollment of Hispanic and low-income students in STEM*

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*Fall 2015-Spring 2016 full-time students enrolled in STEM (baseline data) + Fall 2016-Spring 2017 full-time students enrolled in STEM (growth data)*

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*@ Moorpark College: 2015-16 Baseline: 351*

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*@ Pierce College: 2015-16 Baseline: 564*

*2016-17 Actual: 520 (-8%)*

*@ CSUN: 2015-16 Baseline: 1670*

*2016-17 Actual: 1679 (+0.5%)*

# **STEM retention (3b): first-time student retention in STEM fields**

# STEM retention (3b): first-time student retention in STEM fields

*% Hispanic and low-income, first-time STEM degree field students retained*

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*@ COC: 2014-15/2015-16 Baseline: 34% (73/213) | 2015-16/2016-17 Actual: 59% (169/287)*



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@ MC: 2014-15/2015-16 Baseline: 75% (75/100)	2015-16/2016-17 Actual: 76% (65/86)

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@ MC: 2014-15/2015-16 Baseline: 75% (75/100)	2015-16/2016-17 Actual: 76% (65/86)
@ PC: 2014-15/2015-16 Baseline: 37% (83/224)	2015-16/2016-17 Actual: 57% (107/189)

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@ CSUN: 2014-15/2015-16 Baseline: 80% (553/689)	2015-16/2016-17 Actual: 90% (494/551)

# **Career preparation (4a): AIMS2 students' career preparation**

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*Project participant's attitudes and skills related to career preparation*



# Career preparation (4a): AIMS2 students' career preparation

*Project participant's attitudes and skills related to career preparation*

EMS Survey Items

# Career preparation (4a): AIMS2 students' career preparation

*Project participant's attitudes and skills related to career preparation*

## EMS Survey Items

- **Job or work activities in the first five years after graduation (importance):**
  - Searching out new technologies, processes, techniques, and/or product ideas
  - Generating creative ideas
  - Promoting and championing ideas to others
  - Investigating and securing resources needed to implement new ideas
  - Developing adequate plans and schedules for the implementation of new ideas
  - Selling a product or service in the marketplace
- **Job or work activities in the first five years after graduation (importance):**
  - Designing a new product or project to meet specified requirements
  - Conducting experiments, build prototypes, or construct mathematical models to develop or evaluate a design
  - Developing and integrating component sub-systems to build a complete system or product
  - Analyzing the operation or functional performance of a complete system
  - Troubleshooting a failure of a technical component or system
- How likely to do following in the first five year after graduation (likelihood-job target)
- How likely work will involve engineering one year after you graduate (likelihood)
- How likely to enter graduate school in the first five years after graduation (likelihood)
- Level of preparation for and success in first preferred position after graduation

# Career preparation (4a): AIMS2 students' career preparation

## *Project participant's attitudes and skills related to career preparation*

### EMS Survey Items

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### URSSA Survey Items

# Career preparation (4a): AIMS2 students' career preparation

## *Project participant's attitudes and skills related to career preparation*

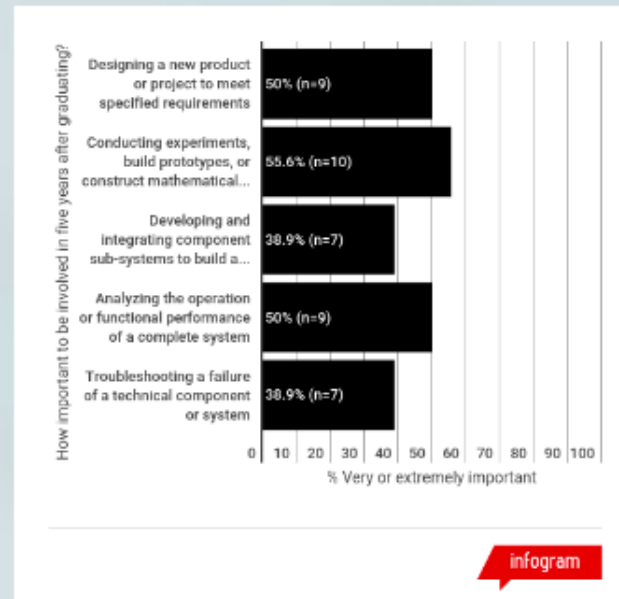
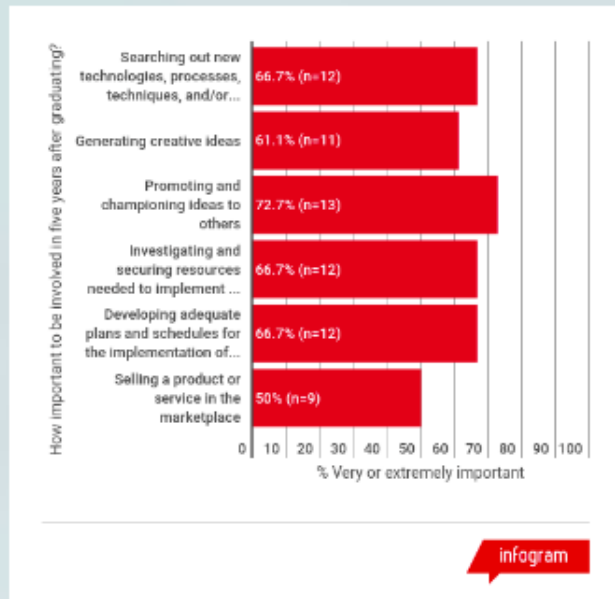
### EMS Survey Items

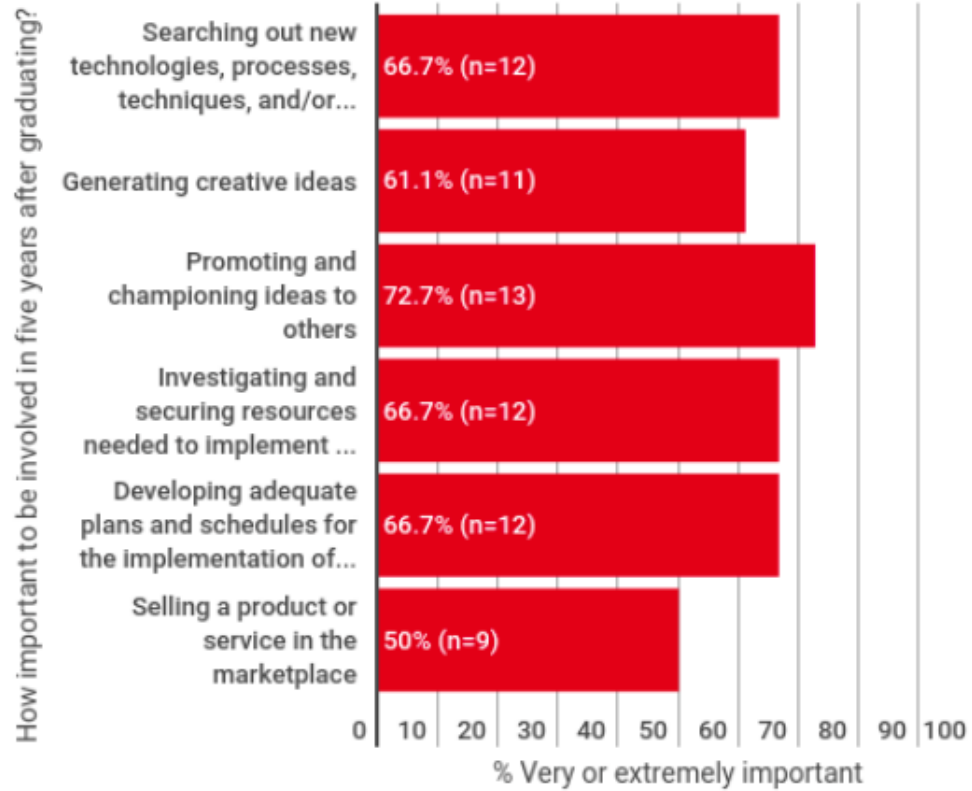
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### URSSA Survey Items

- **Rate how much you agree with the following statements:**
  - Doing research confirmed my interest in my field of study.*
  - My resume has been enhanced by my research experience.*
  - My research experience has prepared me for graduate school.*
  - My research experience has prepared me for a job.*

# Importance of job or work activities five years after graduation (EMS)

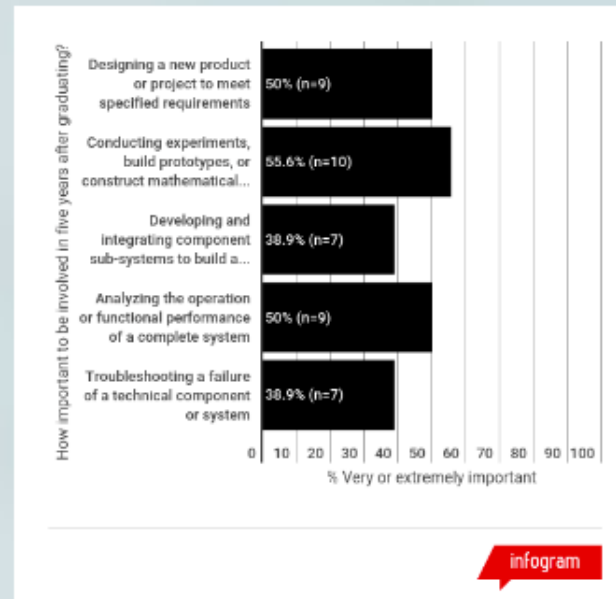
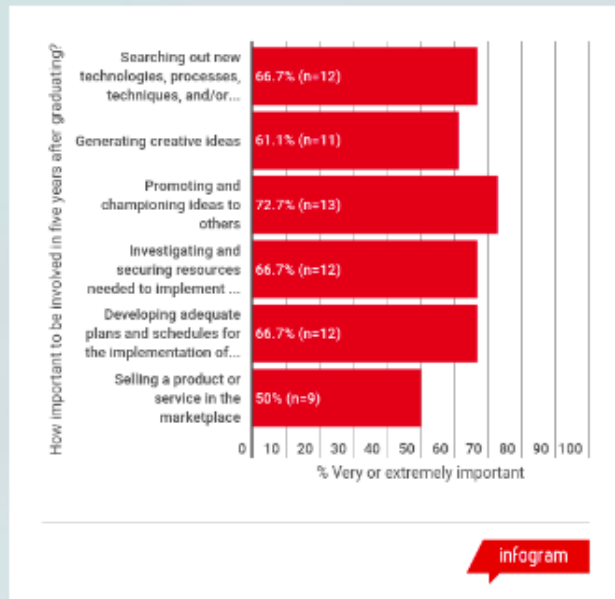


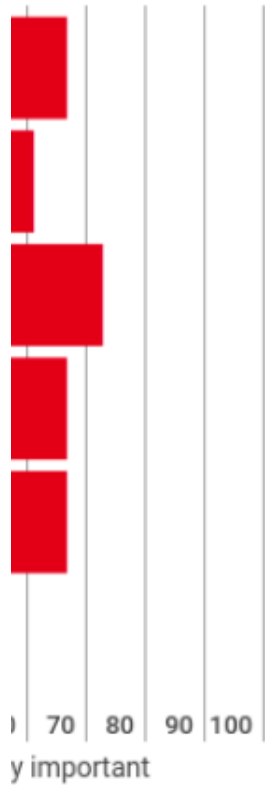


How important to be involved in five years after graduating?

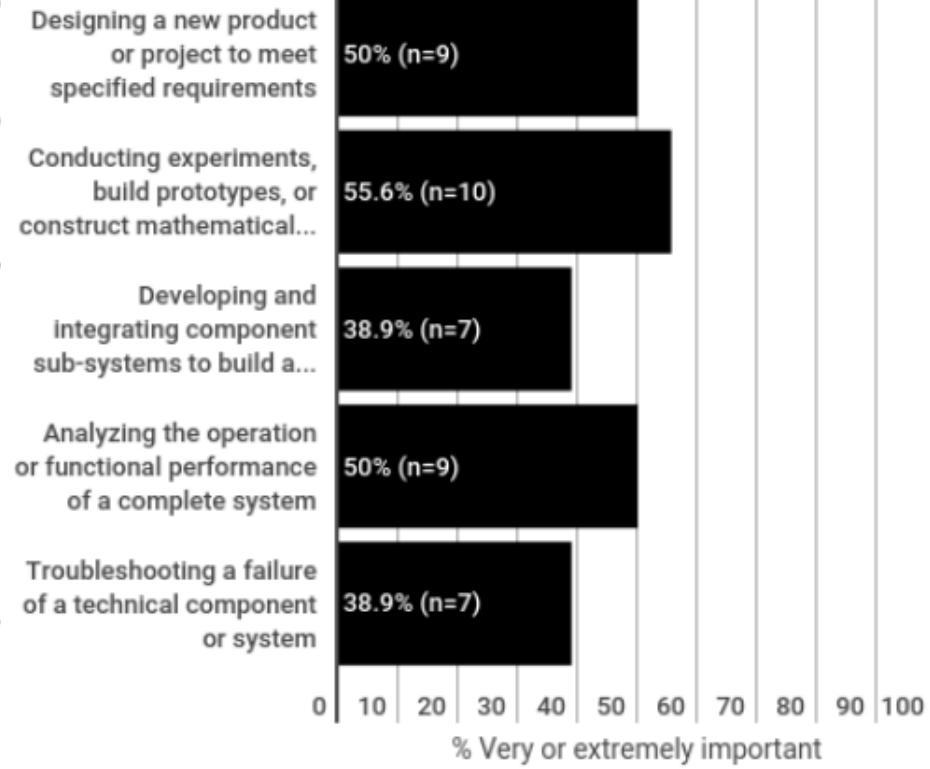
- Designing a new or project specified requirement
- Conducting experiments, building prototypes, constructing mathematical models
- Developing and integrating complex sub-systems to meet a requirement
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- Troubleshooting a technical component

# Importance of job or work activities five years after graduation (EMS)





How important to be involved in five years after graduating?

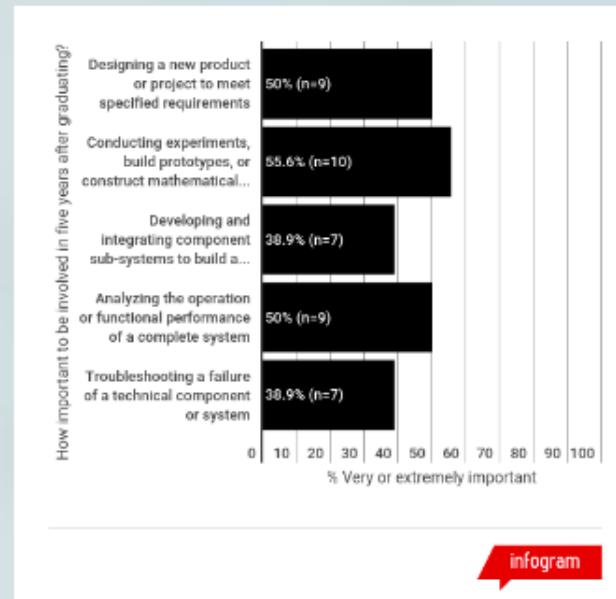
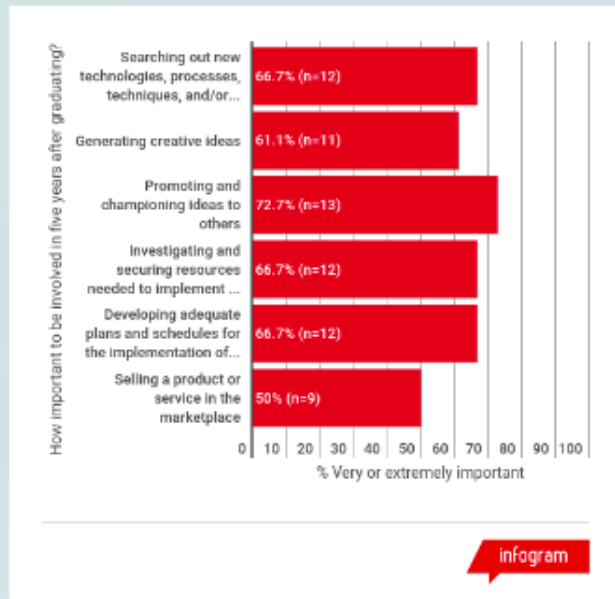


infogram

infogram



# Importance of job or work activities five years after graduation (EMS)

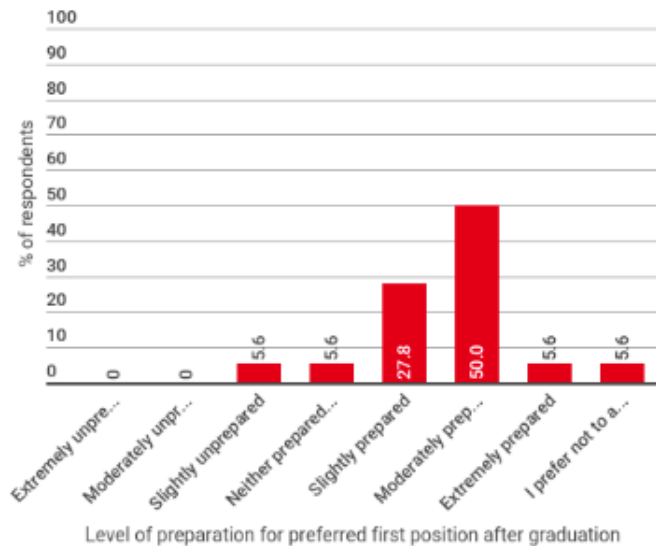


# Likelihood of working in a specific sector in the first five year after graduation (EMS)

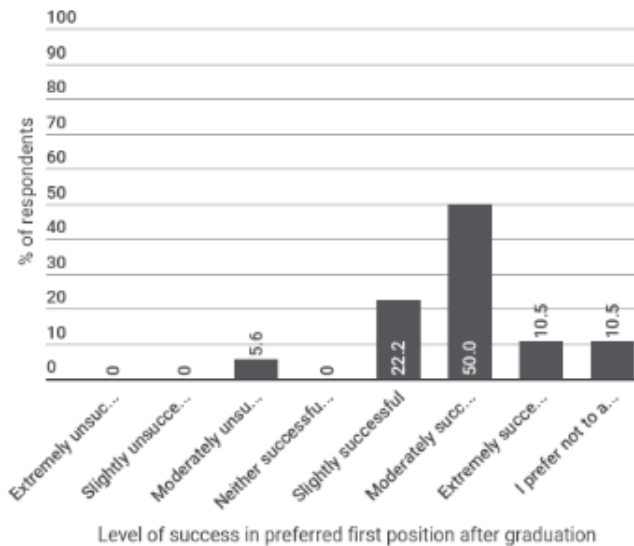


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# Career preparation and success (PEPS)



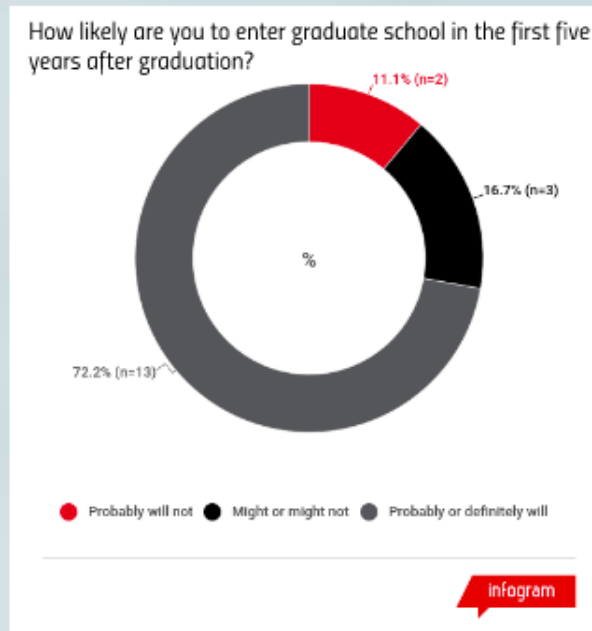
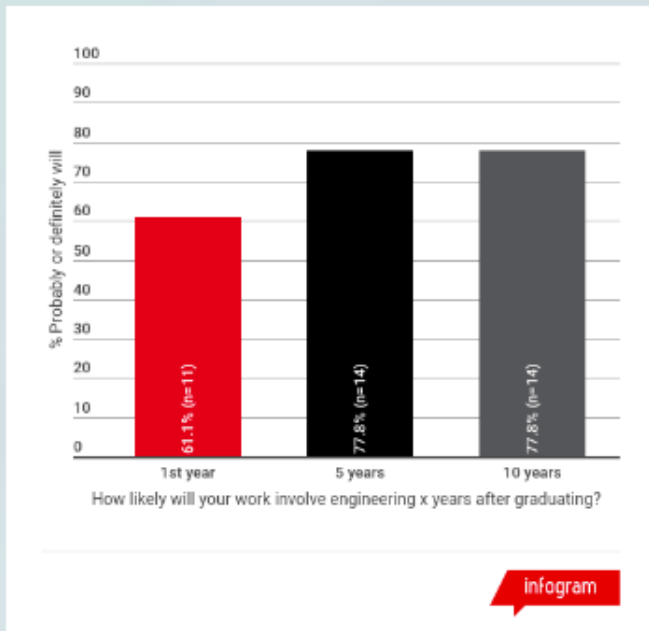
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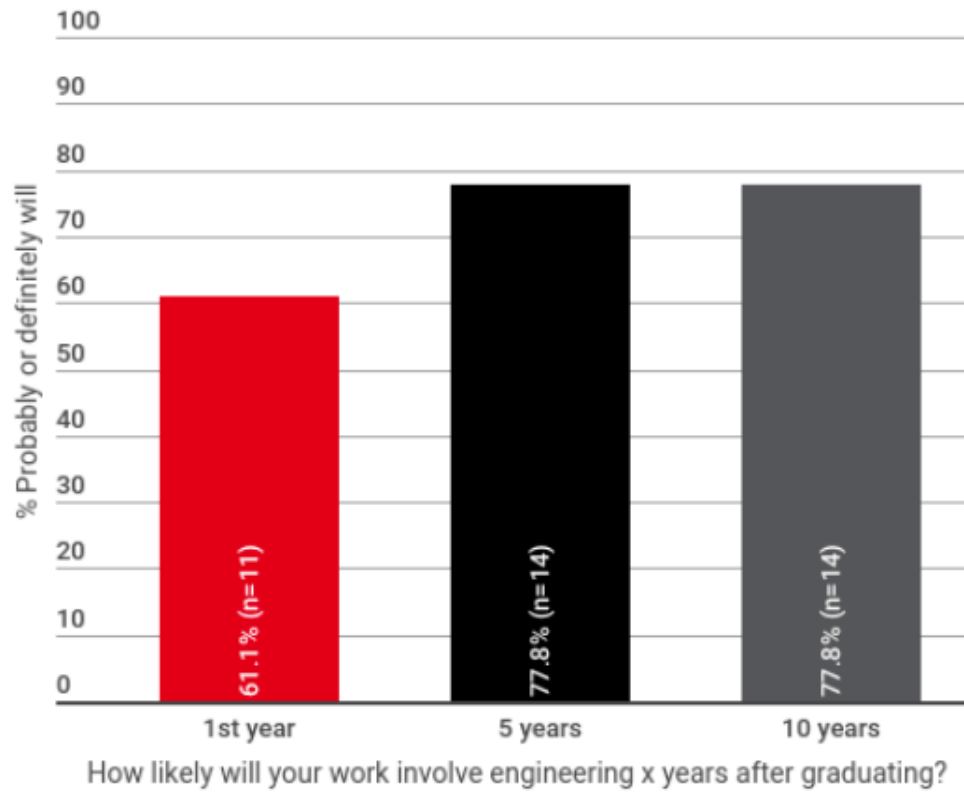


infogram

Professional Engineering Pathways Study (PEPS) survey items in CSUN's EMS

# Likelihood of engineering work and graduate school (EMS)



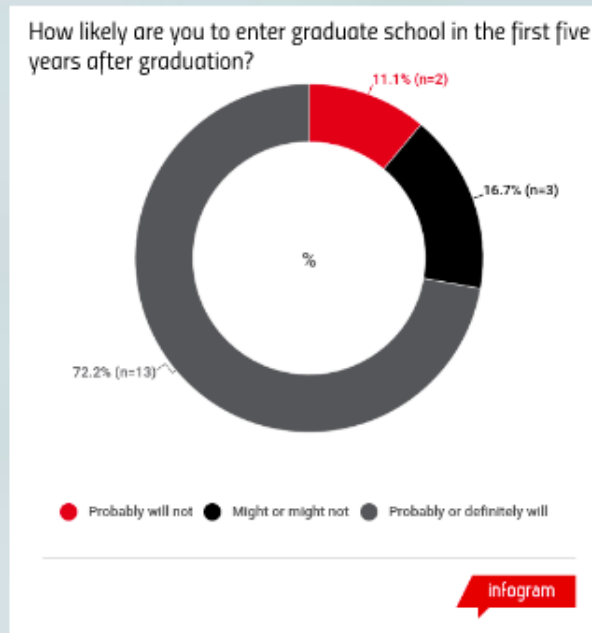
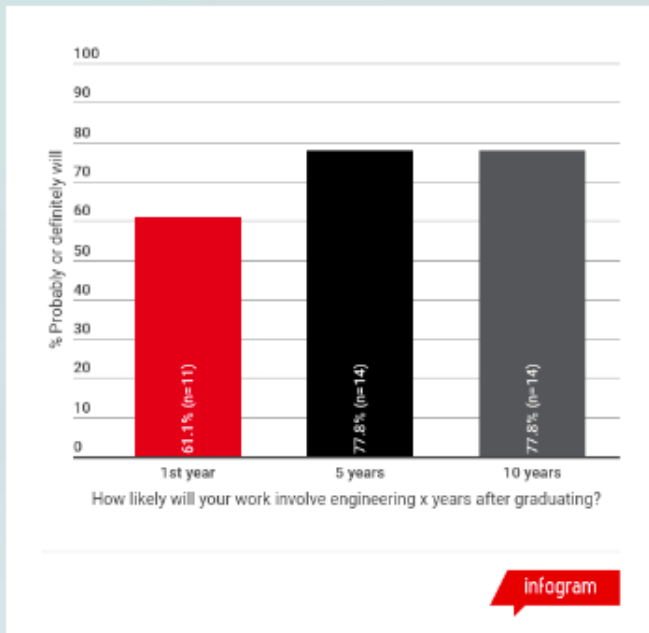


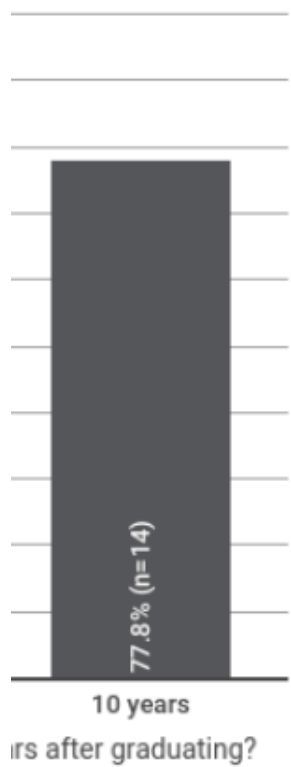
How likely are you  
years after grad

72.2% (n=13)

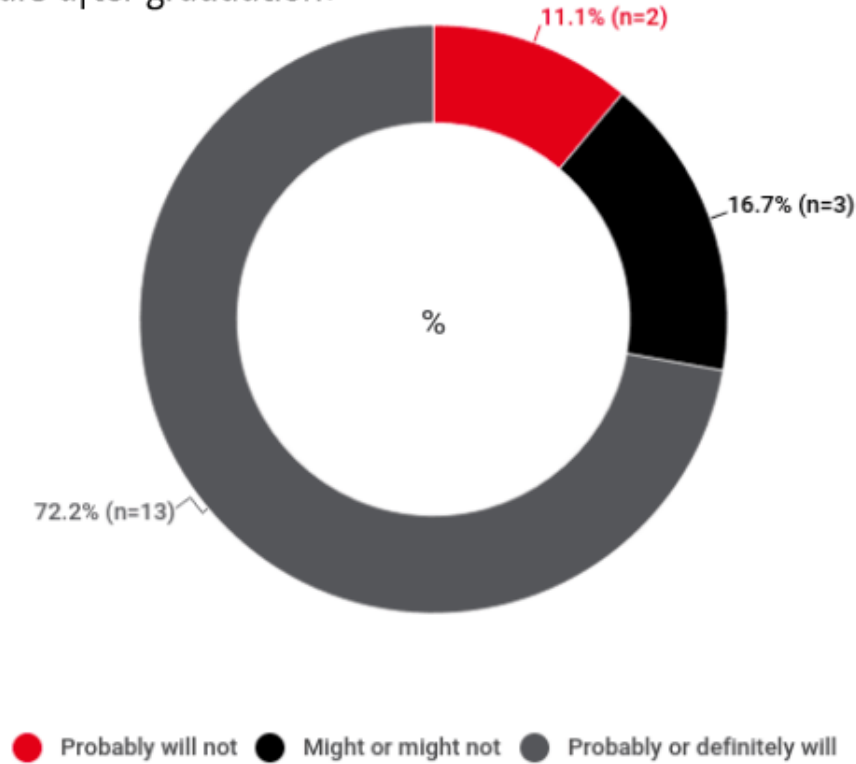
Probably will not

# Likelihood of engineering work and graduate school (EMS)

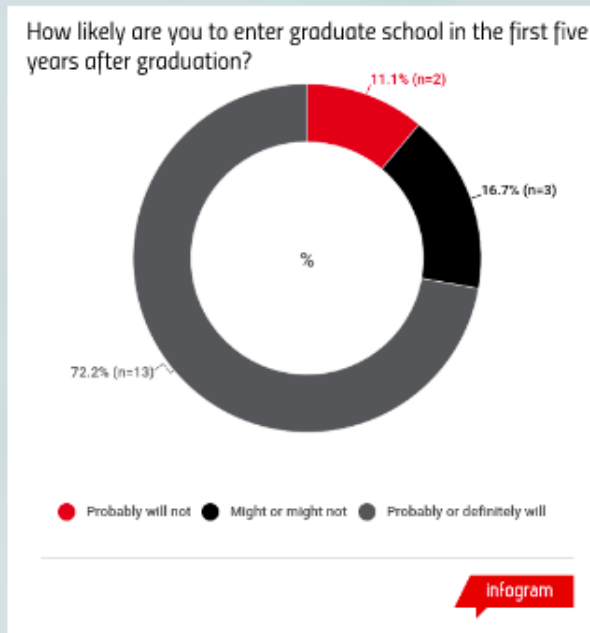
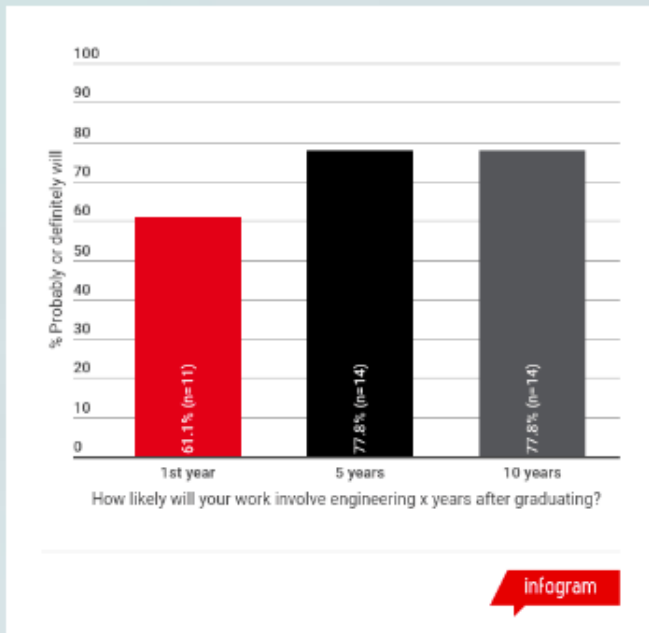




How likely are you to enter graduate school in the first five years after graduation?

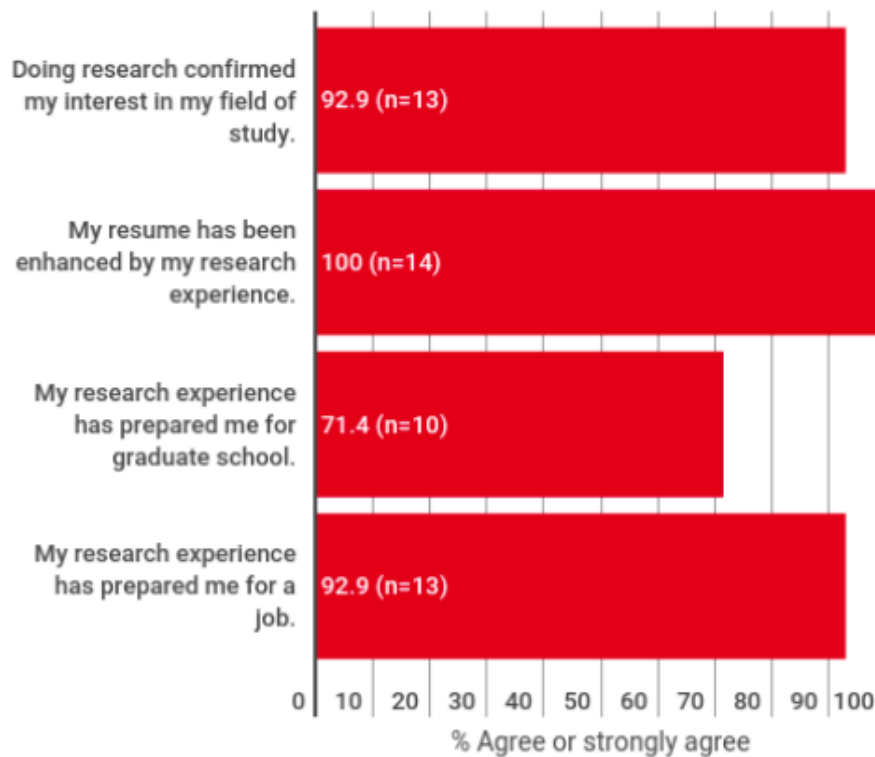


# Likelihood of engineering work and graduate school (EMS)





Rate how much you agree with the following statements.



# Career-related outcomes from research participation with faculty (URSSA)

# Research skills (5a): AIMS2 students' research skills development

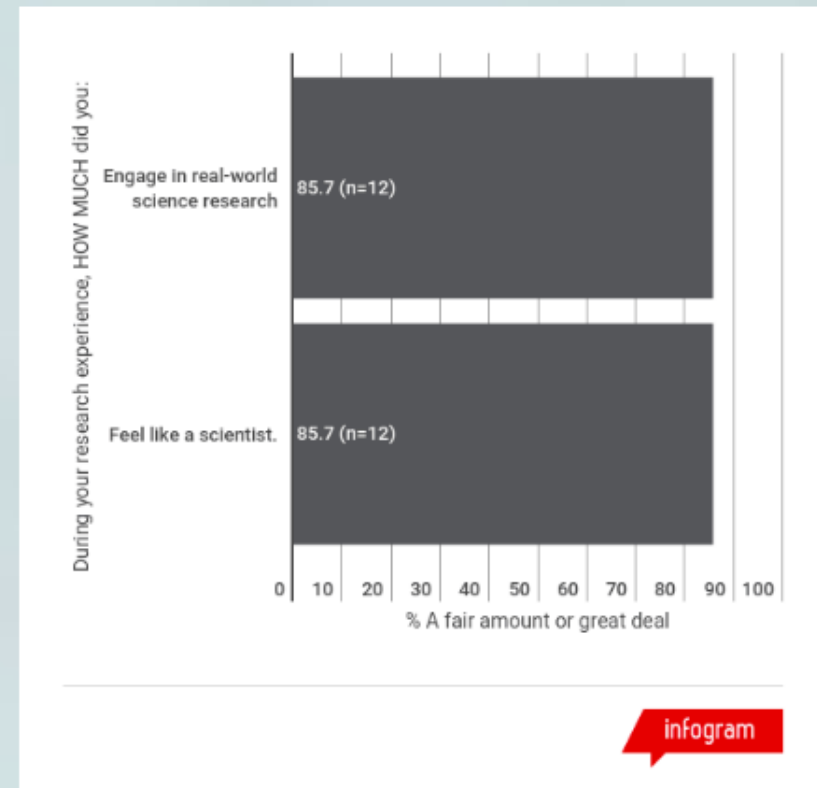
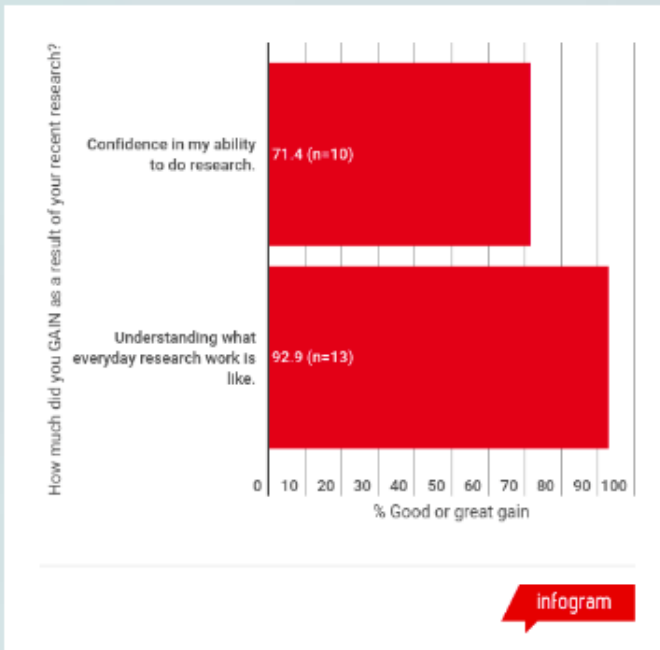
*Project participant's attitudes and skills related to research skills*

URSSA Survey Items

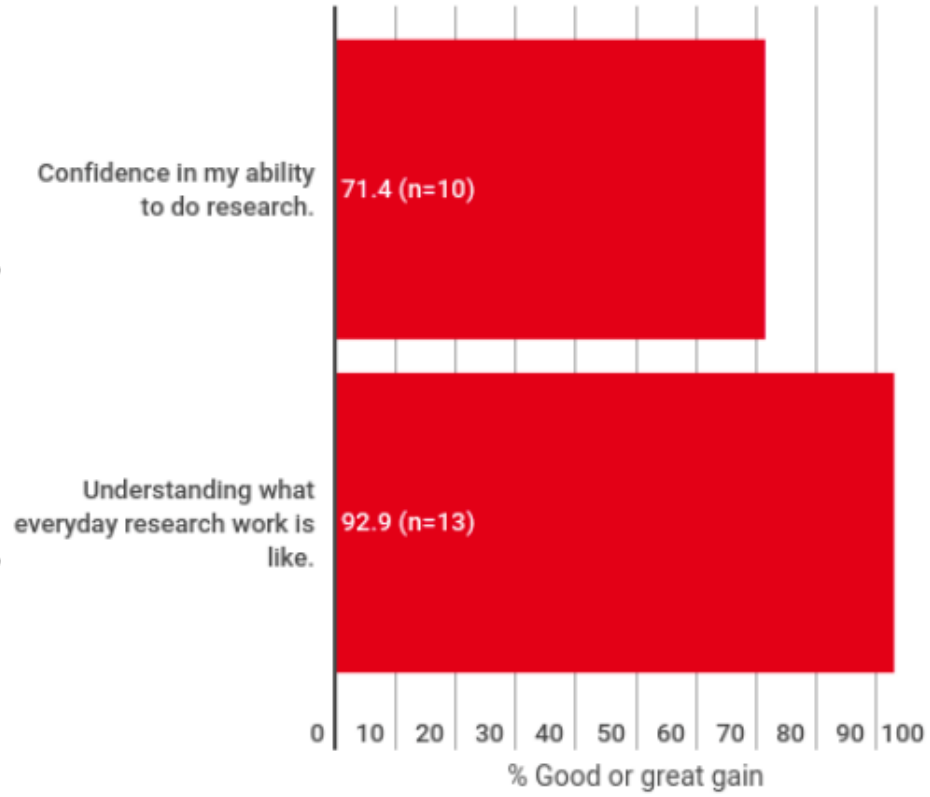
- *How much did you GAIN in the following areas as a result of your most recent research experience?*  
*Confidence in my ability to do research.*  
*Understanding what everyday research work is like.*
- *During your research experience HOW MUCH did you:*  
*Engage in real-world science research*  
*Feel like a scientist.*



# Gains in research experience, confidence, and identity (URSSA)



How much did you GAIN as a result of your recent research?



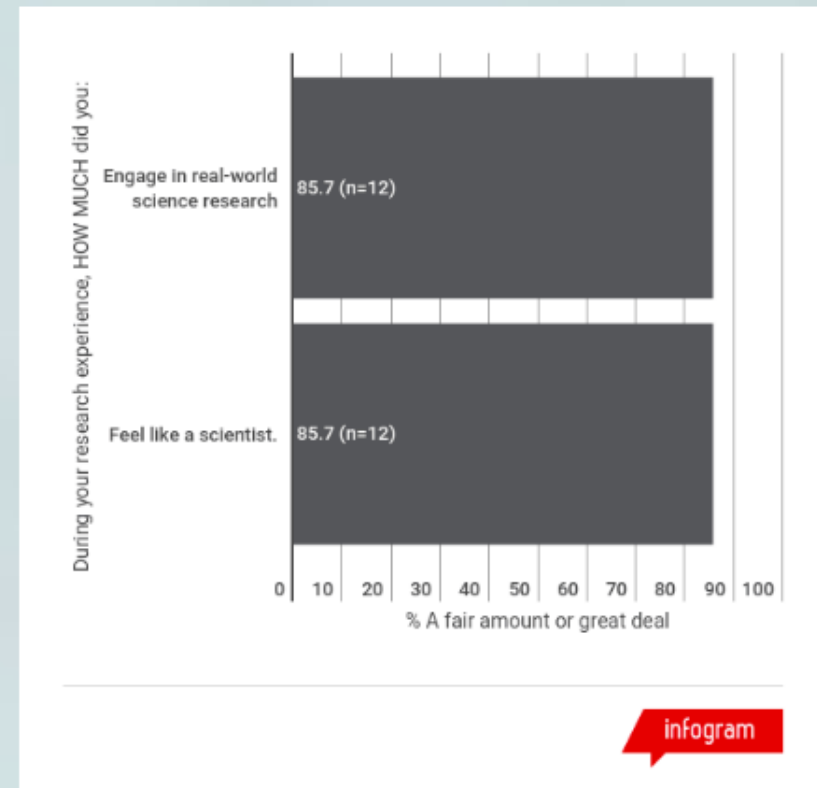
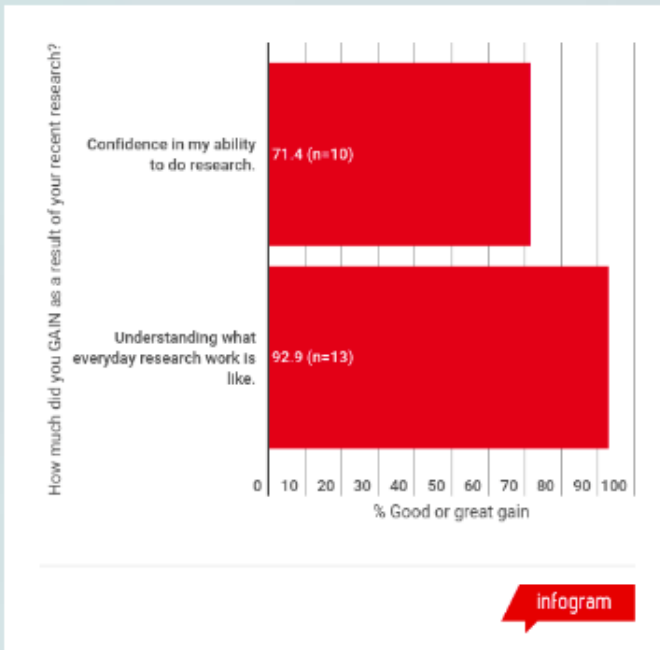
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During your research experience, HOW MUCH did

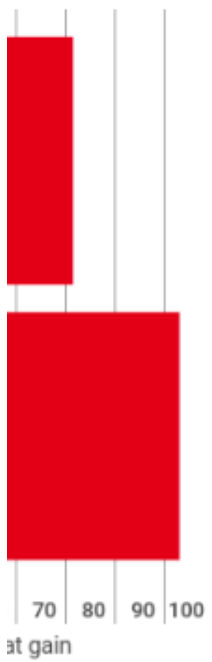
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# Gains in research experience, confidence, and identity (URSSA)

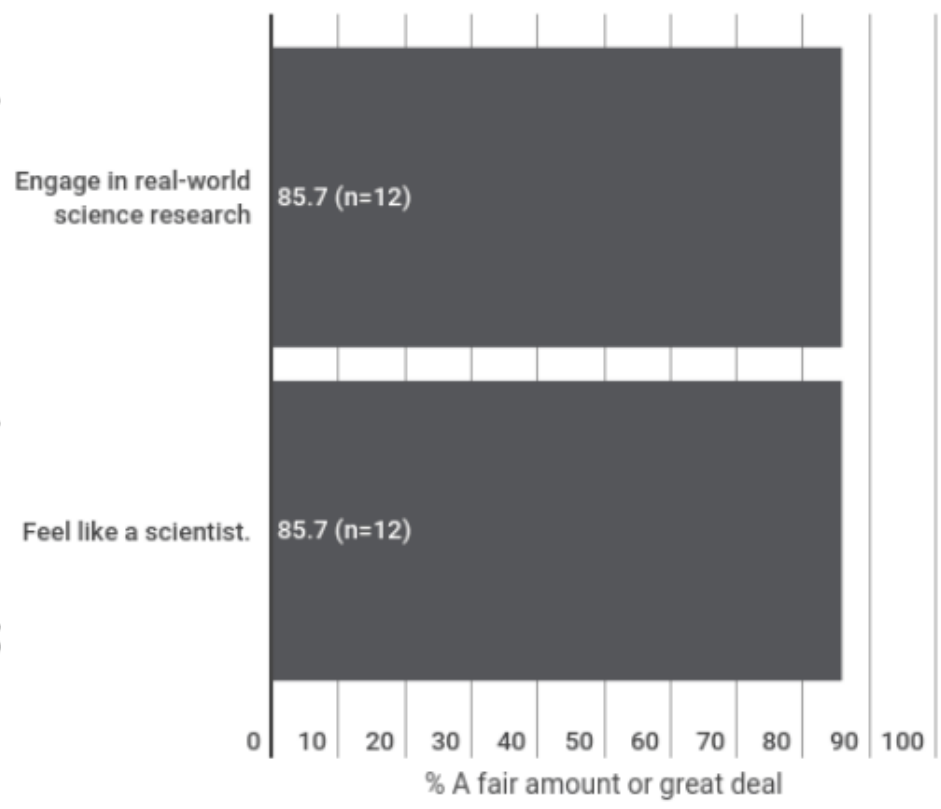


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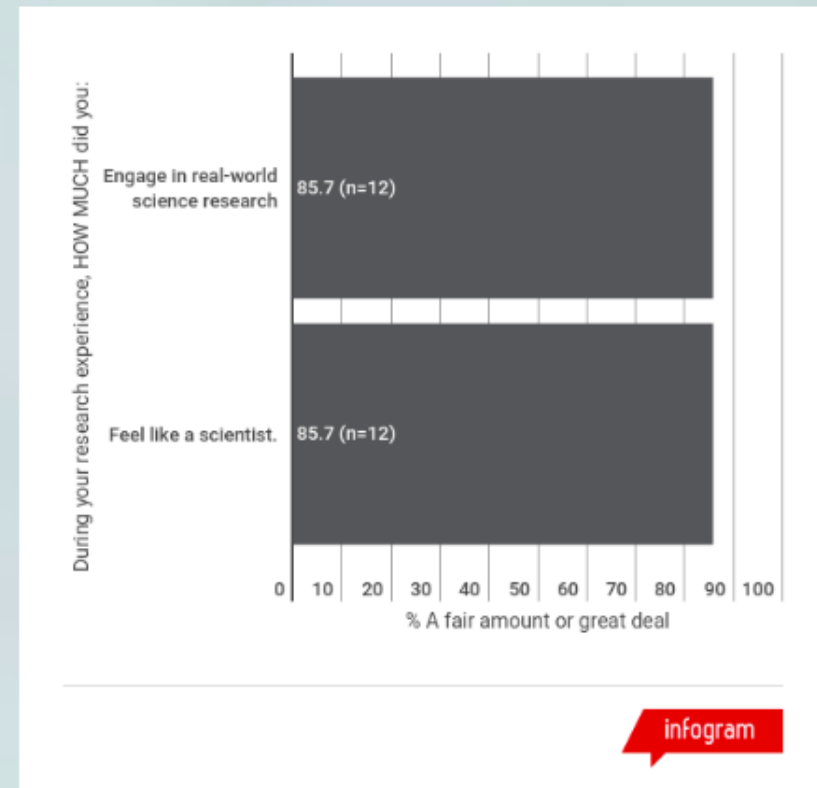
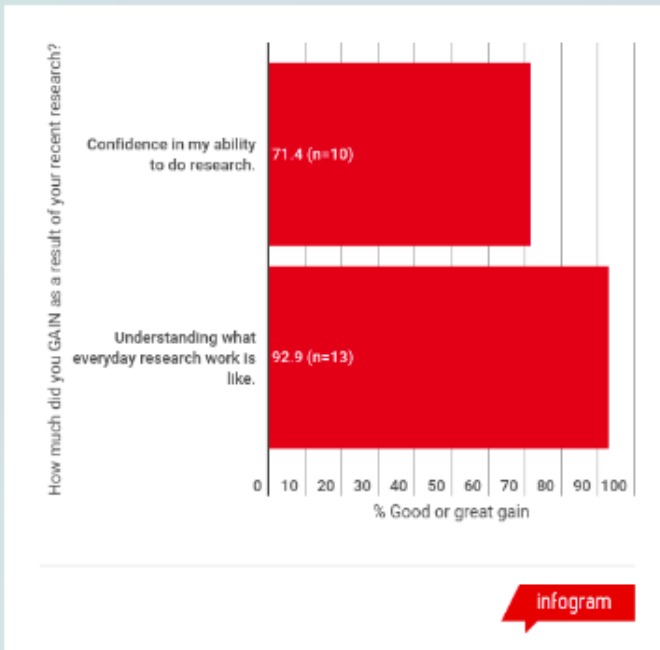
infogram

During your research experience, HOW MUCH did you:



infogram

# Gains in research experience, confidence, and identity (URSSA)



# **Transfer and degree completion (6a): transfer student retention in STEM @ CSUN**





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*% Hispanic and low-income transfer students retained in a STEM degree field*



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*Fall 2015 transfer students enrolled first-time in STEM and retained (enrolled) in STEM in Spring 2016 (baseline data) + Fall 2016 transfer students enrolled first-time in STEM and retained (enrolled) in STEM in Spring 2017 (growth data)*



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***Baseline: 90%*** (Spring 2016: 331/Fall 2015: 367)



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*% Hispanic and low-income transfer students retained in a STEM degree field*

*Fall 2015 transfer students enrolled first-time in STEM and retained (enrolled) in STEM in Spring 2016 (baseline data) + Fall 2016 transfer students enrolled first-time in STEM and retained (enrolled) in STEM in Spring 2017 (growth data)*

**Growth: 93%** (Spring 2017: 311/Fall 2016: 334)

**Baseline: 90%** (Spring 2016: 331/Fall 2015: 367)



# **Transfer and degree completion (6b): transfer students on track to graduate from CSUN**



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*% Hispanic and low-income STEM field transfer students on track to complete a degree*



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*% Hispanic and low-income STEM field transfer students on track to complete a degree*

*Fall 2013 transfer students enrolled first time in STEM with continuous enrollment (academic term) AND 24 units per year (tracked over 3 years) (baseline data) + Fall 2014 transfer students enrolled first time in STEM with continuous enrollment (academic term) AND 24 units per year (tracked over 3 years) (growth data)*



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**Baseline: 35%** (Spring 2016: 112/Fall 2015: 320)





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*Fall 2013 transfer students enrolled first time in STEM with continuous enrollment (academic term) AND 24 units per year (tracked over 3 years) (baseline data) + Fall 2014 transfer students enrolled first time in STEM with continuous enrollment (academic term) AND 24 units per year (tracked over 3 years) (growth data)*

***Growth: 36%*** (Spring 2017: 119/Fall 2016: 330)

***Baseline: 35%*** (Spring 2016: 112/Fall 2015: 320)



# **Transfer and degree completion (6c): AIMS2 student degree completion @ CSUN**



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*% project participants who complete a degree*



# Transfer and degree completion (6c): AIMS2 student degree completion @ CSUN

*% project participants who complete a degree*

*Fall 2016 and Spring 2017 completion of Hispanic and low-income students in CECS who completed a degree (percentage)  
(baseline data)*



# Transfer and degree completion (6c): AIMS2 student degree completion @ CSUN

*% project participants who complete a degree*

*Fall 2016 and Spring 2017 completion of Hispanic and low-income students in CECS who completed a degree (percentage)  
(baseline data)*

*Stay tuned for data in a future report!*





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- Overall high retention of transfer students but lower rates of remaining "on track" to complete a degree within three years of transfer

# Recommendations

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- Continue to focus on quality and frequency of interactions with student participants, including specific discussions of course-related and career-related topics + facilitate more (or more in-depth) discussions of innovative and entrepreneurial research/design ideas across sites

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- Extend research-related opportunities with CSUN faculty to as many student participants as possible--these are invaluable experiences for academic and career outcomes
- Continue to explore opportunities to retain transfer students to keep them on track toward program completion at CSUN, especially as they progress through the curriculum toward program completion



# Plans for evaluation research and reporting



- EMS posttest survey with FTF-1/2 and FTT 1/2 in + EMS pretest survey with comparison groups
- URSSA survey and interview with academic-year faculty research assistants
- Focus groups with CSUN AIMS2 and COC AIMS2 students
- Summer skills workshop focus group + questionnaire report
- 2011 award: program completion and persistence report





**Thank you!**

