UCDAVIS
UNDERGRADUATE EDUCATION

Undergraduate STEM Research at UC Davis: Facts and Promising Activities

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CEE
UC Davis Center for Educational Effectiveness

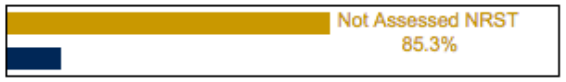
UC Davis Undergrad Profile

Fall 2016 Enrollment, At a glance

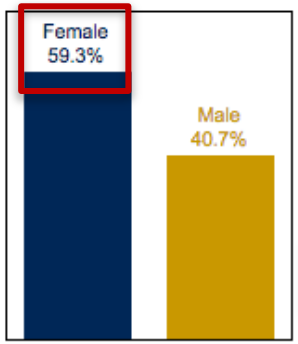
Total Student Population --> 37,398

Degree-Seeking Undergraduate	29,379
Post-Baccalaureate (Teaching Credential)	178
General Campus Professional Programs	659
Self-Supporting Programs	687
Health Science Programs	1,134
Graduate Academic	4,424
Interns and Residents	937

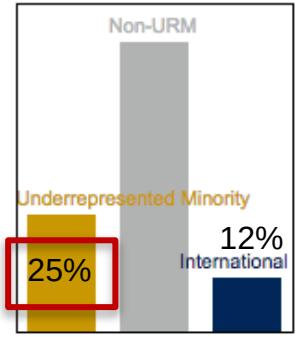
Fee-paying status (aka, "residency"): Degree-Seeking Undergraduate

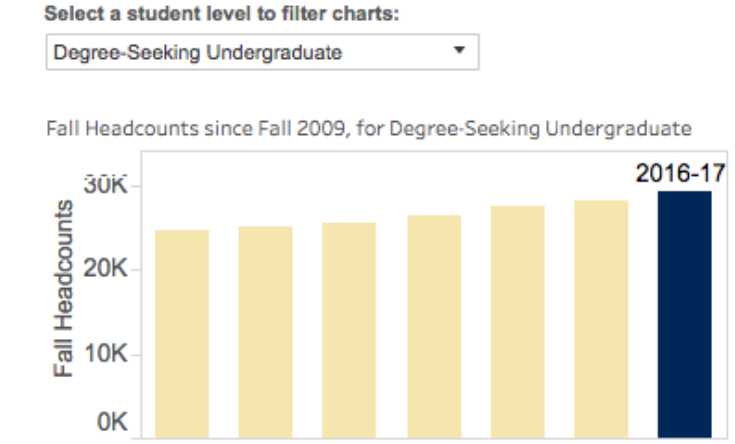


Gender: Degree-Seeking Undergraduate

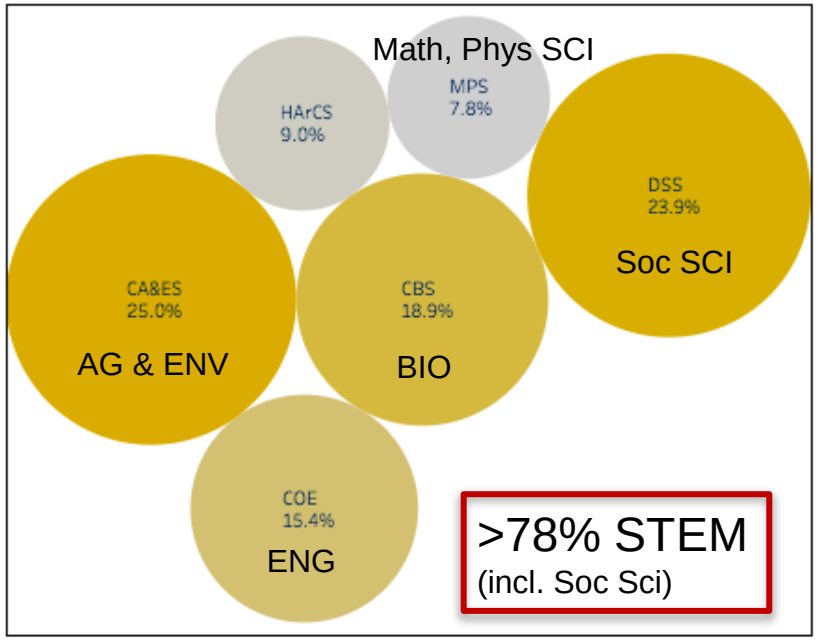


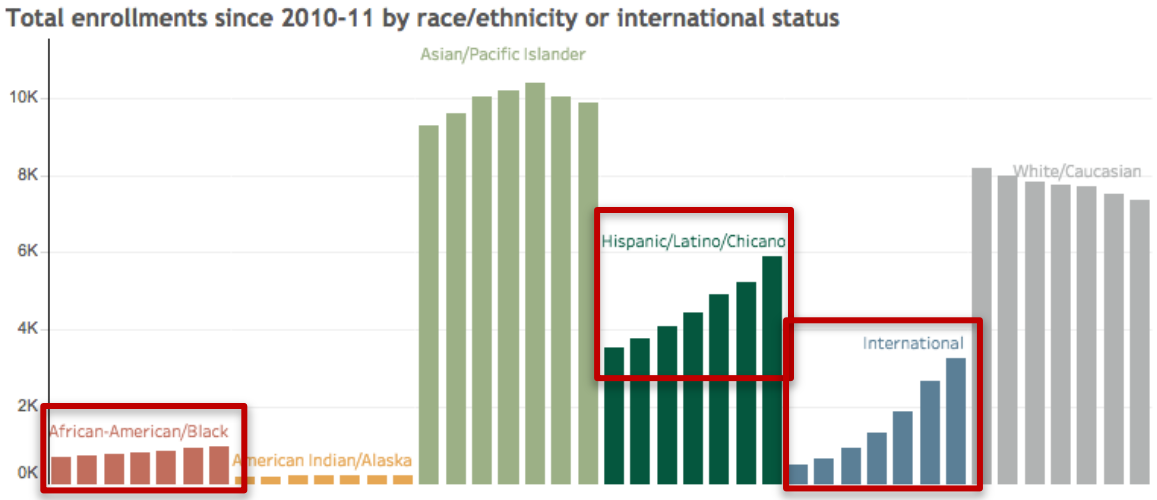
Ethnicity: Degree-Seeking Undergraduate





% share of Degree-Seeking Undergraduate by College/Division or School, Fall 2016





California Residents
$14,047/year

National & International Students
$40,729

OVER 10,000 Students/Yr eligible For Free Tuition

Substantial growth in underserved students

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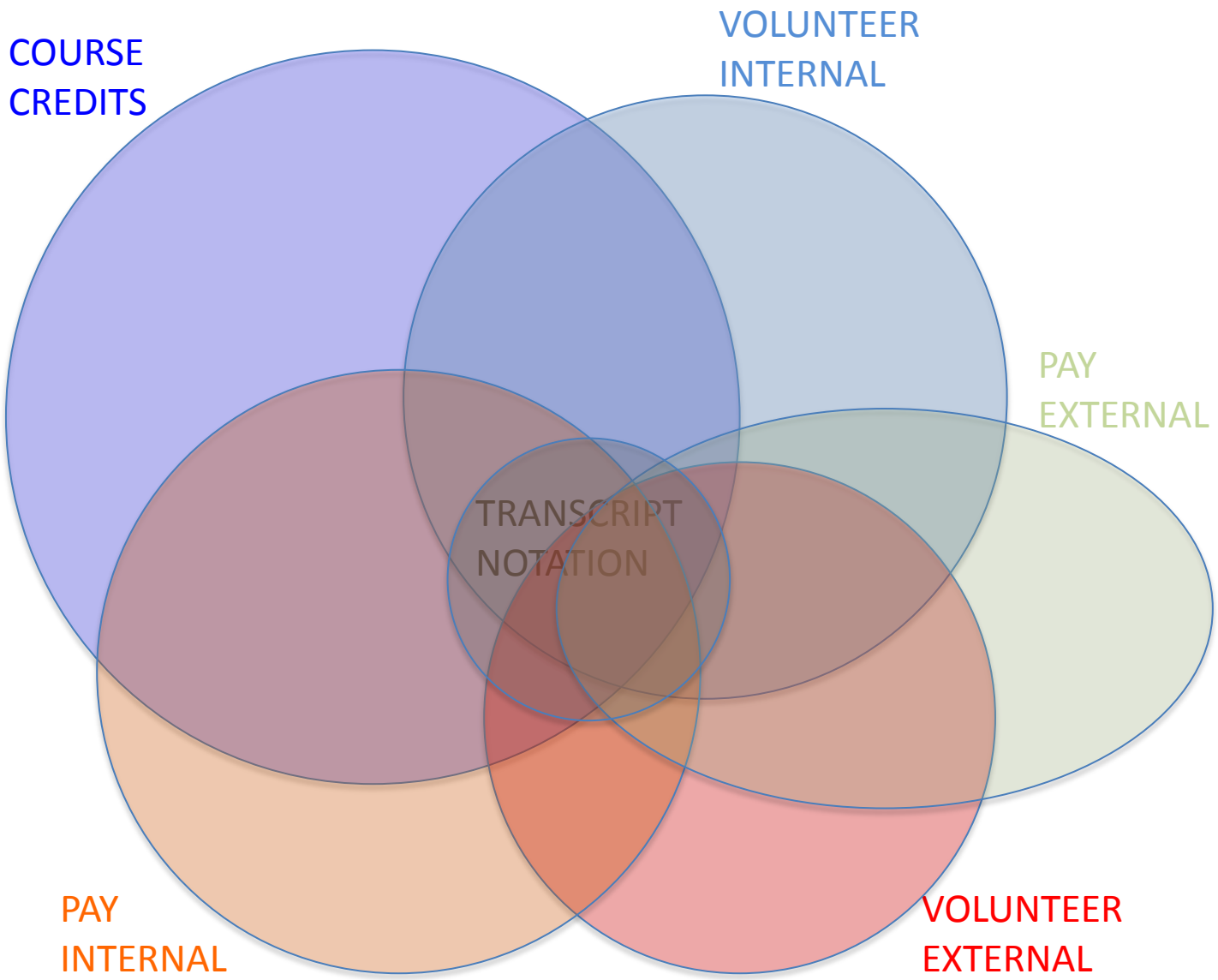
Conducting Research – Student Perspective

Q78 - How important to you are the following aspects of being an undergraduate at a research campus like UC Davis?

Question	Total	Not important	Not very important	Somewhat important	Important	Very important	Essential	
Having courses with faculty members who refer to their own research as part of the class	8,445	6.0%	16.8%	26.4%	28.0%	16.1%	6.6%	
Learning research methods	8,427	2.9%	7.2%	20.6%	34.8%	21.9%	12.6%	
Assisting faculty members in their research, for pay or as a volunteer	8,432	4.0%	10.0%	21.2%	31.3%	21.0%	12.5%	64.8%
Pursuing your own research	8,410	5.5%	14.4%	23.1%	27.4%	18.9%	10.6%	56.9%

Variety and Overlaps for Students



Indicate the following activities you are currently doing or have completed at UCD

Question	Total	Yes, doing now or have done	No
A research project or research paper as part of your coursework	9,313	66.8%	33.2%
At least one research methods course	9,302	47.4%	52.6%
At least one independent study course	9,283	20.1%	79.9%
Assist faculty in conducting research	9,248	23.6%	76.4%
A creative project as part of your coursework (e.g., musical or theatrical performance, marketing campaign, curating an art exhibit)	9,296	29.1%	70.9%
Assist faculty with their creative project	9,290	7.7%	92.3%

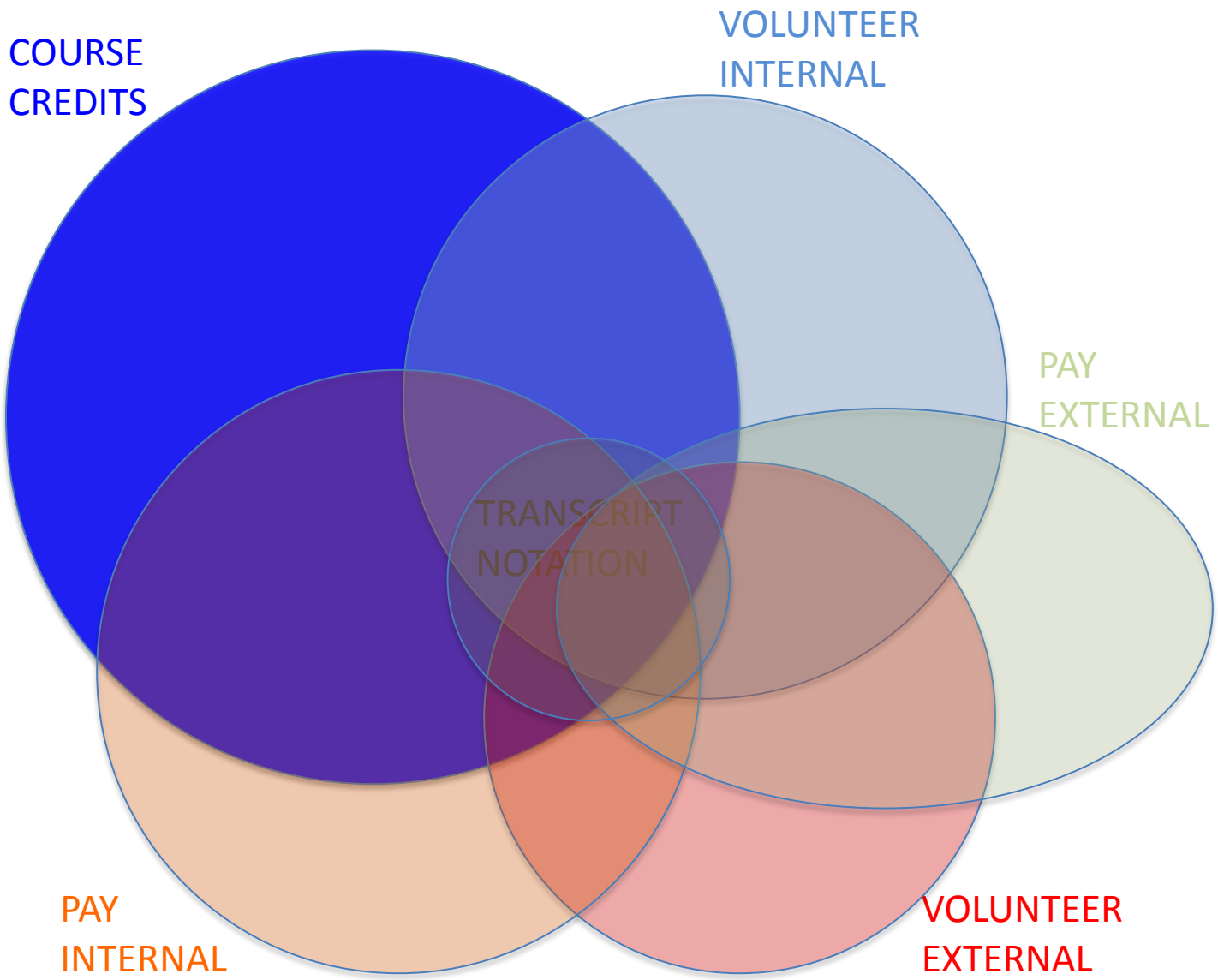
Q13 - Was your assistance with research for:

Answer	Count	%
Course credit	1,116	51.3%
Pay without course credit	423	19.4%
Volunteer without pay or course credit	637	29.3%
Total	2,176	100%

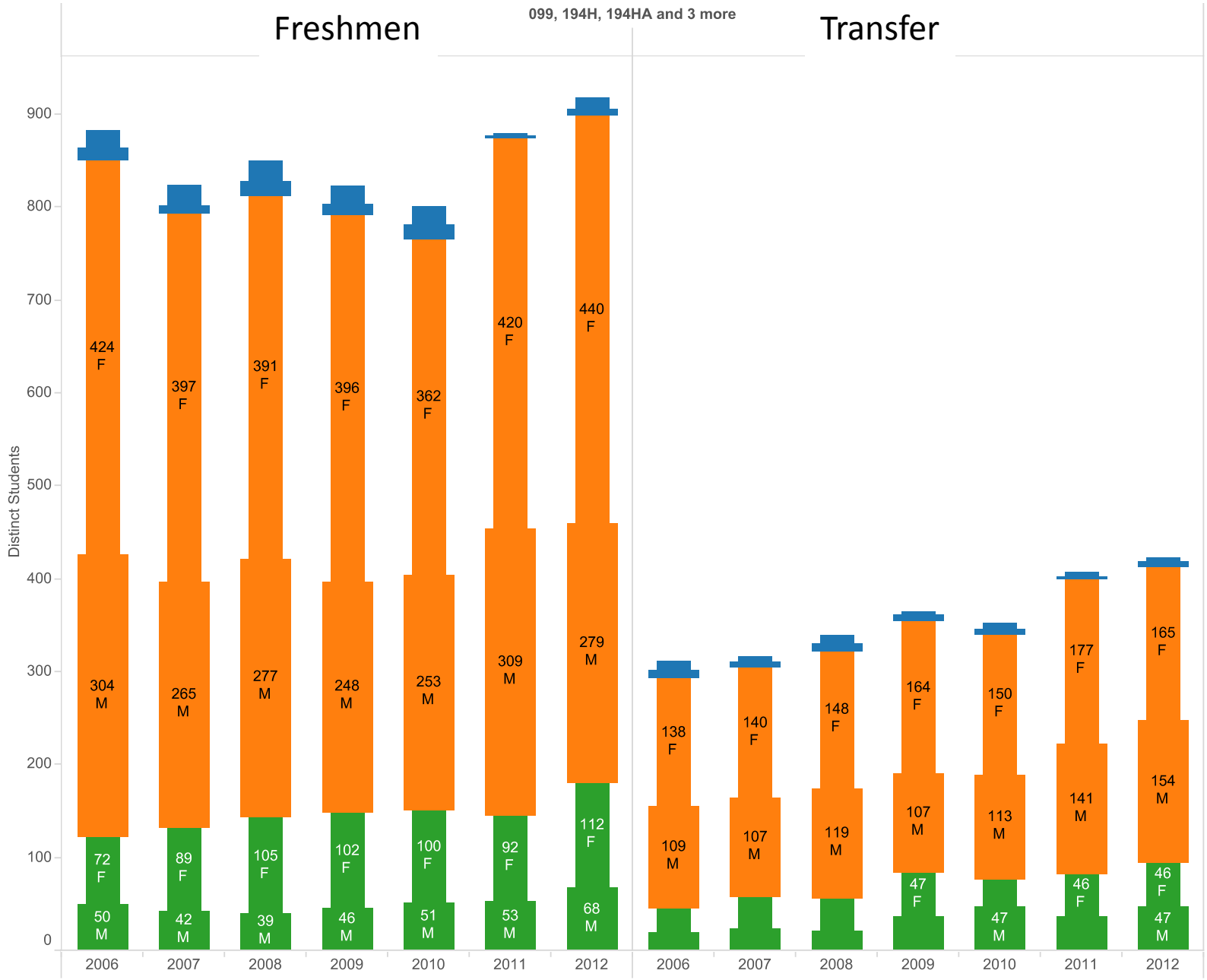
2016 UCUES data

About ½ get Course Credit

Variety and Overlaps – Focus on Units



Research for Credit Via Courses
URM and gender*



2012 Freshmen

563 F (61.4%)

354 M

180/917 (19.6%) URM

4568 entering STEM

20% have research credits

2012 Transfer

215 F (50.1%)

208 M

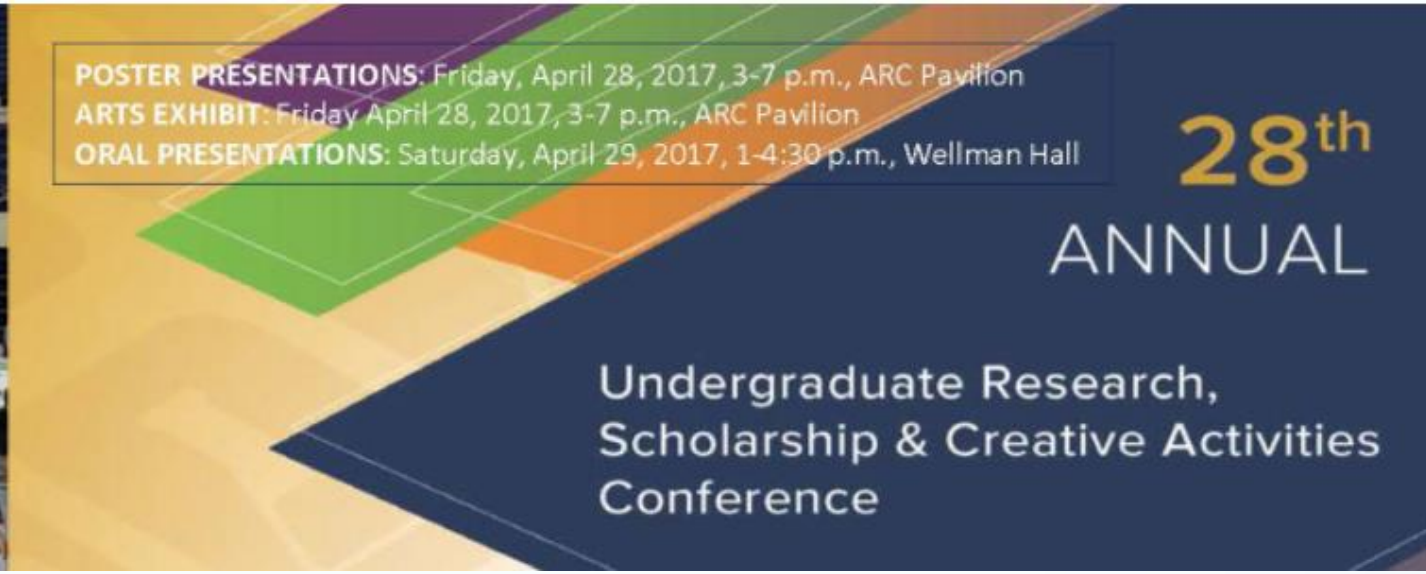
93/423 (22%) URM

2395 entering STEM

18% have research credits

*Research participation for units only! Severely undercounts total numbers of students engaged in research experiences. Only STEM majors counted

Ongoing initiatives: Undergraduate Research Conference



Posters
Art Exhibits
Oral Presentations

Over 700 undergraduate presenters, mostly STEM
(approx. 2700 individuals conducting STEM research for credit in 2016)

Promising initiatives: First year Seminar (FYS) offerings with Experiential Learning

Experiential Learning Seminars

1. Integrate **field-specific practices** (students are exposed to techniques used in the field)
2. Involve **collaboration** (Students work together as a class and reach out to members of their community to find solutions)
3. Create work that is **meaningful** to the field – is broadly relevant (The research, production, service is important and of value to the community)
4. Are **discovery based** – (findings or work produced is novel, there is not a know outcome and the classes work has not been previously created)

This style of seminar generally comprises :

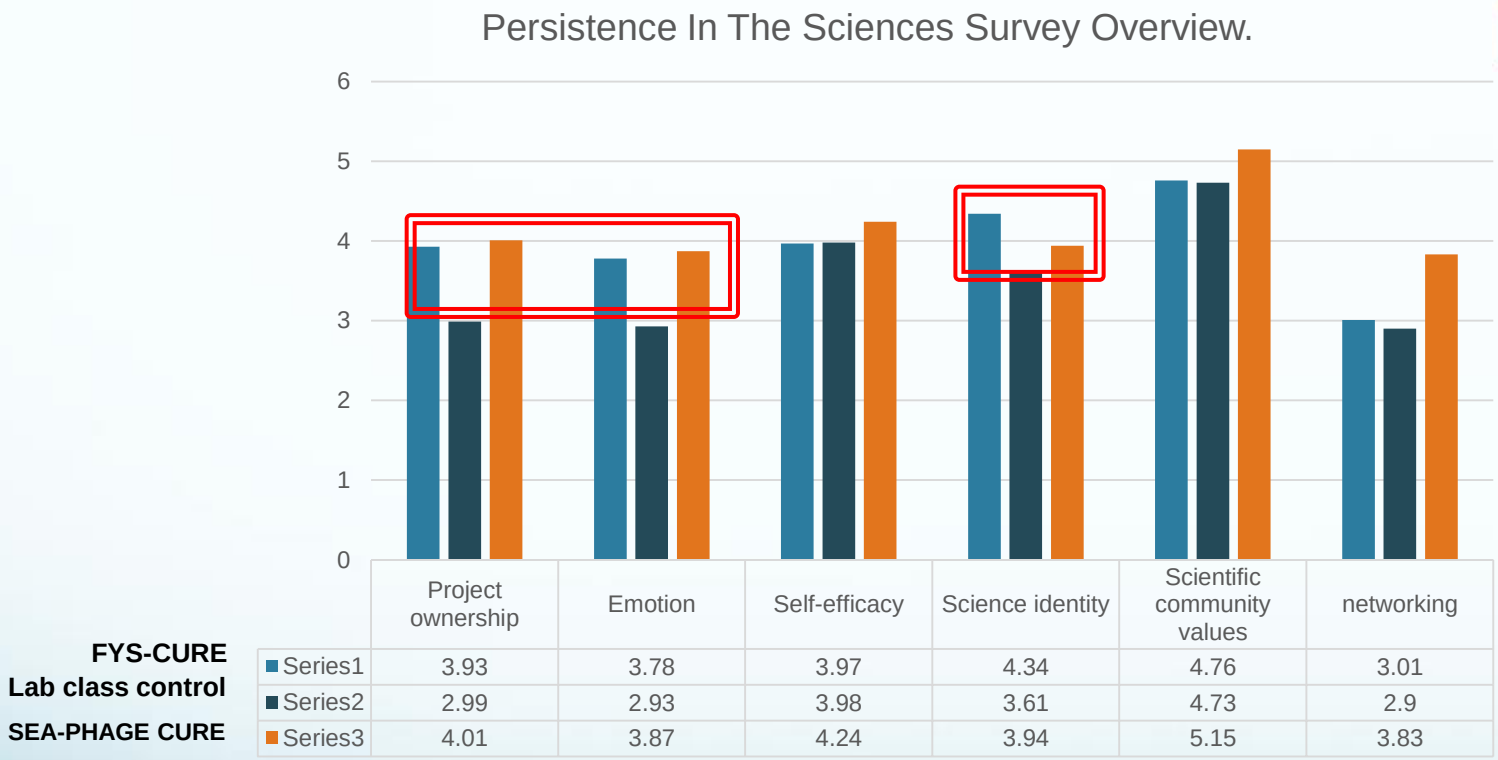
Course-Based Undergraduate Research Experiences (CUREs)

Project-based courses

Service-learning projects

Ashley Vater, M.S.
Curriculum Developer
First Year Seminar Program
UCD

Development of CURE based FYS



	Project ownership	Emotion	Self-efficacy	Science identity	Scientific community values	networking
FYS-CURE	3.93	3.78	3.97	4.34	4.76	3.01
Lab class control	2.99	2.93	3.98	3.61	4.73	2.9
SEA-PHAGE CURE	4.01	3.87	4.24	3.94	5.15	3.83

PITs survey data from FYS-CURE at UCD (Winter 2016, Marc Facciotti BME) in comparison with national published data from SEA-Phage CURE.

CURE offerings in Spring 2017 had long waitlists, representing an unmet demand.