

Impacts of Fly-CURE on student outcomes

I. Fly-CURE institutional demographics

A. Demographic data of general student populations at Fly-CURE institutions

Institution	State	Total student population	Under-graduate population	Undergrad -to-grad ratio	Female-to-male ratio	% minority	% Pell grant eligible	% First-generation
Albion College	MI	1506	1506	1	1.15	35	47	25
Anoka-Ramsey Community College	MN	11213	11213	1	1.7	30	15	24
Frostburg State University	MD	4449	3677	0.826	1.27	46	34	26
Illinois State University	IL	20233	17674	0.874	1.5	27.4	32	N/A
Loyola Marymount University	CA	9686	6096	0.629	1.17	47.1	N/A	10
Morehouse College	GA	2554	2554	1	0	99	57	N/A
Nevada State College	NV	7215	7201	0.998	2.8	67	38.4	29.4
Northern Illinois University	IL	16234	11834	0.729	1.26	52.65	50.9	49.6
Ohio Northern University	OH	3116	2191	0.703	0.92	11	21	16
Ohio Wesleyan University	OH	1426	1426	1	1.24	22.6	28	18.1
The College of Wooster	OH	1973	1973	1	1.19	22.4	N/A	N/A
University of Detroit Mercy	MI	5227	2924	0.559	1.61	19	28	33
University of Evansville	IN	2078	1796	0.864	1.5	15	25	16
University of St. Francis	IL	3426	1316	0.384	2.03	46	43	46
Western New Mexico University	NM	3632	2848	0.784	2	51	62	54

N/A = Not available

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B. Classifications and designations of Fly-CURE institutions

Institution	Specific Carnegie classification	General Carnegie classification	Minority Serving Institution (MSI) category
Albion College	Baccalaureate Colleges: Arts & Sciences Focus	PUI	no
Anoka-Ramsey Community College	Associate's Colleges: High Transfer-High Nontraditional	Community college	no
Frostburg State University	Master's Colleges & Universities: Larger Programs	Masters university	no
Illinois State University	Doctoral Universities: High Research Activity	R2	no
Loyola Marymount University	Doctoral Universities: High Research Activity	R2	no
Morehouse College	Baccalaureate Colleges: Arts & Sciences Focus	PUI	HBCU
Nevada State College	Baccalaureate Colleges: Diverse Fields	PUI	AANAPISI and HSI
Northern Illinois University	Doctoral Universities: High Research Activity	R2	no
Ohio Northern University	Baccalaureate Colleges: Diverse Fields	PUI	no
Ohio Wesleyan University	Baccalaureate Colleges: Arts & Sciences Focus	PUI	no
The College of Wooster	Baccalaureate Colleges: Arts & Sciences Focus	PUI	no
University of Detroit Mercy	Doctoral/Professional Universities	Doctoral/Professional university	no
University of Evansville	Master's Colleges & Universities: Medium Programs	Masters university	no
University of St. Francis	Doctoral/Professional Universities	Doctoral/Professional university	no
Western New Mexico University	Master's Colleges & Universities: Larger Programs	Masters university	HSI

AANAPISI = Asian American and Native American Pacific Islander-Serving Institution; HBCU = Historically Black College or University; HSI = Hispanic Serving Institution; MSI = Minority Serving Institution; PUI = Primarily Undergraduate Institution

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C. Fly-CURE modules and associated courses taught at participating institutions

Institution	Course	Components included in course			
		Complementation mapping	Phenotypic characterization	Molecular analysis	Bioinformatics
Albion College	Genetics	Y	Y	Y	Y
Anoka-Ramsey Community College	Genetics	Y	Y	Y	Y
Frostburg State University	Genetics	Y	Y	Y	Y
Illinois State University	Genetics	Y	Y	Y	Y
Loyola Marymount University	Genetics Laboratory	Y	Y	Y	Y
Morehouse College	Genetics	Y	Y	N/A	Y
Nevada State College	Genetics	Y	Y	Y	Y
Northern Illinois University	Genetics	Y	Y	Y	N
Ohio Northern University	Genetics	Y	Y	Y	Y
Ohio Wesleyan University	Genetics	Y	Y	Y	Y
The College of Wooster	Molecular Biology	Y	Y	Y	Y
University of Detroit Mercy	Genetics Laboratory	Y	Y	Y	Y
University of Evansville	Genetics	Y	Y	Y	Y
University of St. Francis	Introductory Biology	Y	Y	Y	Y
Western New Mexico University	Anatomy and Physiology	N	Y	N	N

Y = Yes; N = No; N/A = not available

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II. Fly-CURE student demographics

A. Gender

		Frequency	Percent	Valid Percent
Valid	Male	130	27	28
	Female	318	66	69
	Not listed	4	1	1
	Prefer not to say	8	2	2
	Total	460	96	100
Missing	Blank	20	4	
Total		480	100	

B. Academic year

		Frequency	Percent	Valid Percent
Valid	Freshman	20	4	4
	Sophomore	156	33	34
	Junior	143	30	31
	Senior	132	28	29
	Already have a bachelor's degree	9	2	2
	Total	460	96	100
Missing	Blank	20	4	
Total		480	100	

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C. Student rank (combined)

		Frequency	Percent	Valid Percent
Valid	Freshman/Sophomore	176	37	38
	Junior/Senior/Already has bachelor's degree	284	59	62
	Total	460	96	100
Missing	Blank	20	4	
Total		480	100	

D. Underrepresented in STEM

		Frequency	Percent	Valid Percent
Valid	Not Underrepresented in STEM	335	70	73
	Underrepresented in STEM	124	26	27
	Total	459	96	100
Missing	Blank	21	4	
Total		480	100	

E. First generation student status

		Frequency	Percent	Valid Percent
Valid	First generation student (neither mother nor father attended college)	134	28	29
	Continued generation student (one or both parents attended college)	323	67	71
	Total	457	95	100
Missing	Blank	23	5	
Total		480	100	

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F. Previous research experience

		Frequency	Percent	Valid Percent
Valid	No research exposure	228	48	48
	Some research exposure	252	53	53
	Total	480	100	100

G. Types of prior research experiences

	Yes		No		Total
	Frequency	Percent	Frequency	Percent	
a. Took one or more Introduction to Research OR Research Methods courses	147	31	332	69	479
b. Took a course where the outcome of the research was not already known	142	30	336	70	478
c. Did research during the summer with a research mentor (PI or grad student)	66	14	413	86	479
d. Did research during the semester with a research mentor	126	26	354	74	480

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Fly-CURE Course Pre-Survey [selected questions]

1. Are you: (check all that apply)
 - Native Hawaiian or other Pacific Islander (original peoples)
 - American Indian or Alaskan Native
 - Asian (including subcontinent and Philippines)
 - Black or African American (including African and Caribbean)
 - White
2. Are you Hispanic or Latino?
 - Yes
 - No
3. Are you of Middle Eastern descent (including Arab states, Israel, Turkey, Afghanistan, Iran, Pakistan, Egypt, Iraq, and Saudi Arabia)?
 - Yes
 - No
4. What is your gender?
 - Male
 - Female
 - Not listed
 - Prefer not to say
5. What is your current academic standing?
 - Freshman
 - Sophomore
 - Junior
 - Senior
 - Already have my bachelor's degree
6. Has either your mother or father attended any college?
 - Both mother and father attended college
 - Only mother attended college
 - Only father attended college
 - Neither mother nor father attended college
7. Which of these previous research experiences have you had?
 - a. Took one or more Introduction to Research or Research Methods courses?
 - i. Yes
 - ii. No
 - b. Took a course where the outcome of the research was not already known?
 - i. Yes
 - ii. No
 - c. Did research during the summer with a research mentor (PI or grad student)?
 - i. Yes
 - ii. No
 - d. Did research during the semester with a research mentor?
 - i. Yes
 - ii. No
 - e. Presented my research to others at my university?

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- i. Yes
- ii. No
- f. Presented my research outside of my university?
 - i. Yes
 - ii. No
- g. Had some other kind of research experience prior to this course?
 - i. Yes (please describe this experience below)
 - ii. No

8. Please tell us how confident you feel, now, about each of these...

	1 – Not at all	2	3	4	5 – Completely
I can use research tools, instruments, or techniques to measure concepts of interest					
I can generate a research question to answer					
I can figure out what data/observations to collect and how to collect them					
I can explain the results of a study					
I can use scientific literature and/or reports to guide research					
I can integrate results from multiple studies into a theme or theory					
I can solve problems through research					
I can explain my scientific research to others					

9. Please tell us how strongly you agree or disagree with each of these...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel I belong to a community of researchers					
I have come to think of myself as a 'researcher'					
I feel like I belong in the field of research					
I gain satisfaction from doing important research					
Please mark "neutral" for this item					

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Fly-CURE Course Post-Survey [selected questions]

1. How interested are you in taking another science lab course that incorporates research where the outcome is not known?
 - Very interested
 - Somewhat interested
 - Not interested at all

2. How likely are you to:

	Not likely	A little likely	Somewhat likely	Very likely	Definitely
a) Enroll in another research intensive science lab course?					
b) Pursue or continue independent research in a science lab?					
c) Pursue a career as a scientist?					

3. Compared to your intentions **BEFORE** taking this course, **HOW LIKELY ARE YOU NOW** to:

	Not more likely	A little more likely	Somewhat more likely	Much more likely	Extremely more likely
a) Enroll in another research intensive science lab course?					
b) Pursue or continue independent research in a science lab?					
c) Pursue a career as a scientist?					

4. Please tell us how confident you feel, now, about each of these...

	1 – Not at all	2	3	4	5 – Completely
I can use research tools, instruments, or techniques to measure concepts of interest					
I can generate a research question to answer					
I can figure out what data/observations to collect and how to collect them					
I can explain the results of a study					
I can use scientific literature and/or reports to guide research					

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I can integrate results from multiple studies into a theme or theory					
I can solve problems through research					
I can explain my scientific research to others					

5. Please tell us how strongly you agree or disagree with each of these...

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel I belong to a community of researchers					
I have come to think of myself as a 'researcher'					
I feel like I belong in the field of research					
I gain satisfaction from doing important research					
Please mark "neutral" for this item					