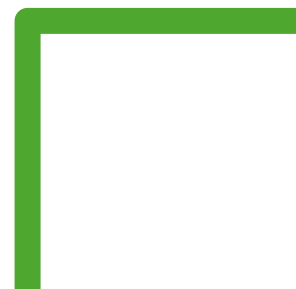
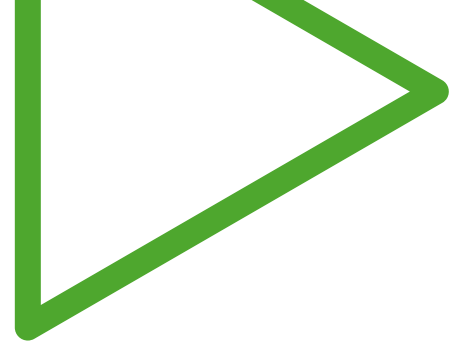


Understanding STEM Student Cultural Perspectives to Increase STEM Retention

Kristy Henson & Josh George
2024





Purpose of this project

Primary Driver: STEM students succeed academically

Secondary Driver: STEM students are meaningfully connected with faculty, staff, and peers in ways that promote belonging, wellness, resilience, and financial stability

Survey results

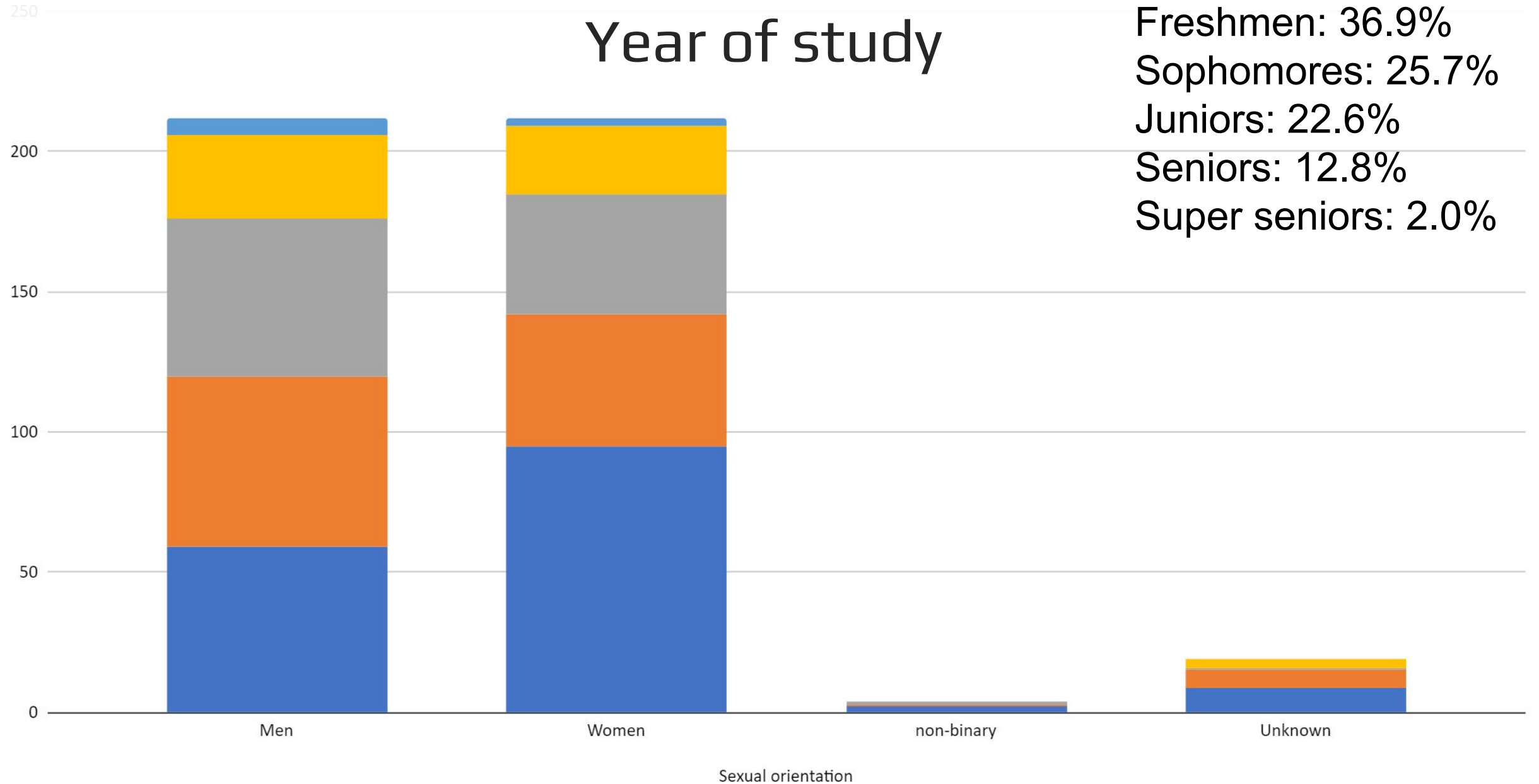
Students 447
(STEM 291/383
= 75.9%)

Faculty 43
(43/55 78.18%
)

Student to
faculty ratio
10:1

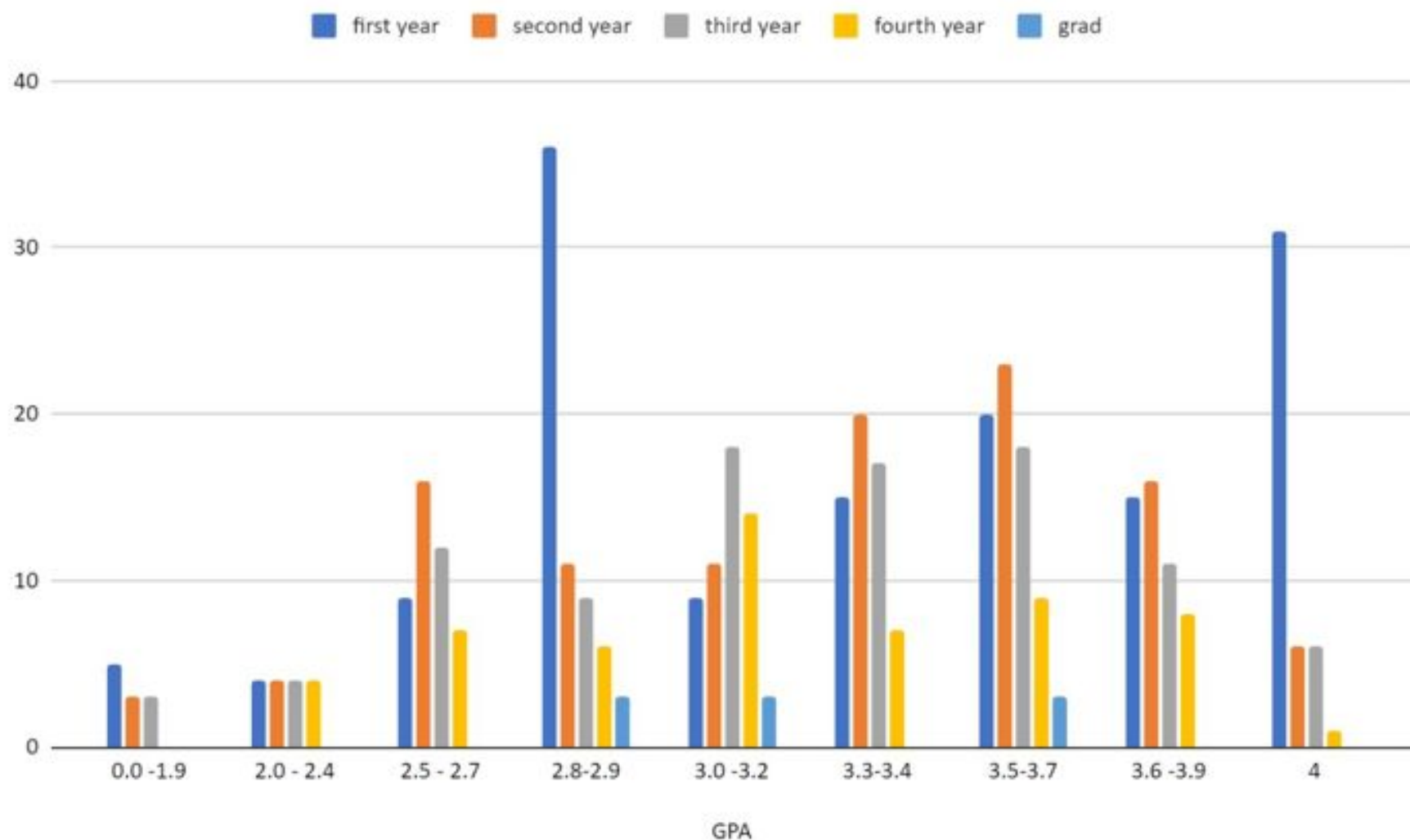
graduate 4th year 3rd year 2nd year 1st year

Year of study



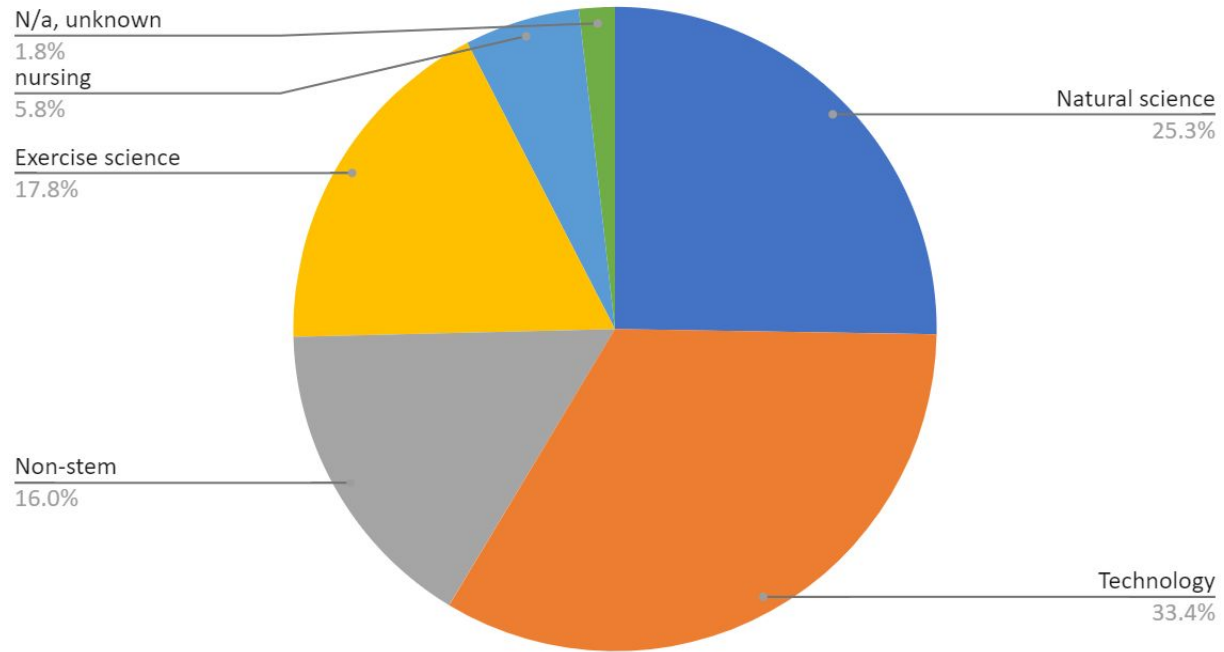
Freshmen: 36.9%
Sophomores: 25.7%
Juniors: 22.6%
Seniors: 12.8%
Super seniors: 2.0%

GPA ranges

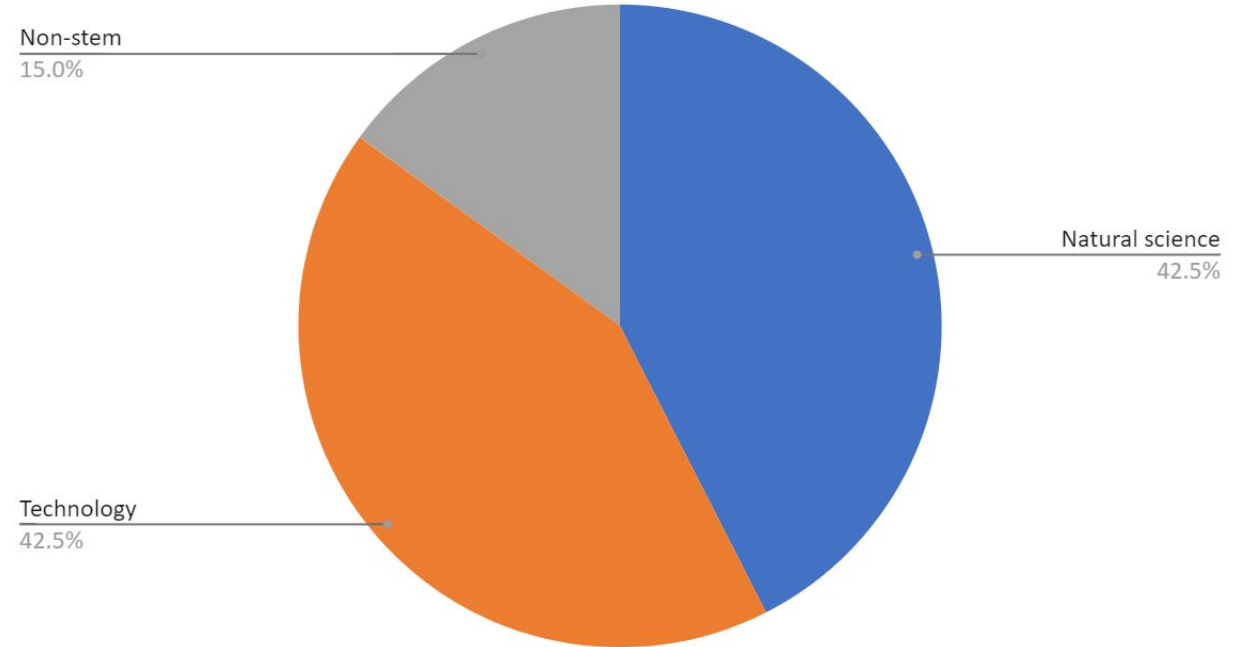


GPA	%
1.0-1.9	2.64
2.0-2.4	3.84
2.5-2.7	10.5
2.8-2.9	15.6
3.0-3.2	13.2
3.3-3.4	14.1
3.5-3.7	17.5
3.8-3.9	12.0
4.0	10.6

Major by college

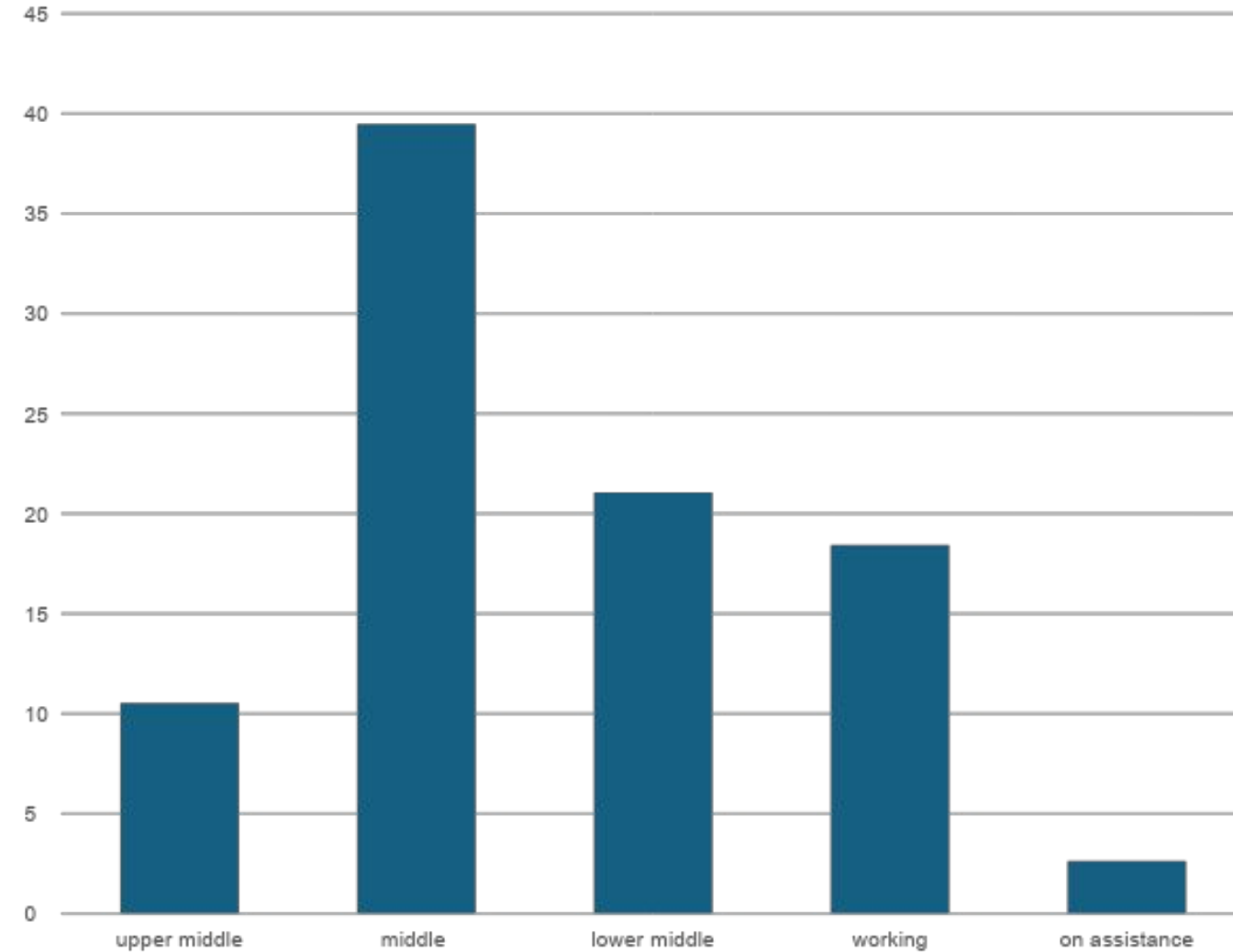


Faculty by college

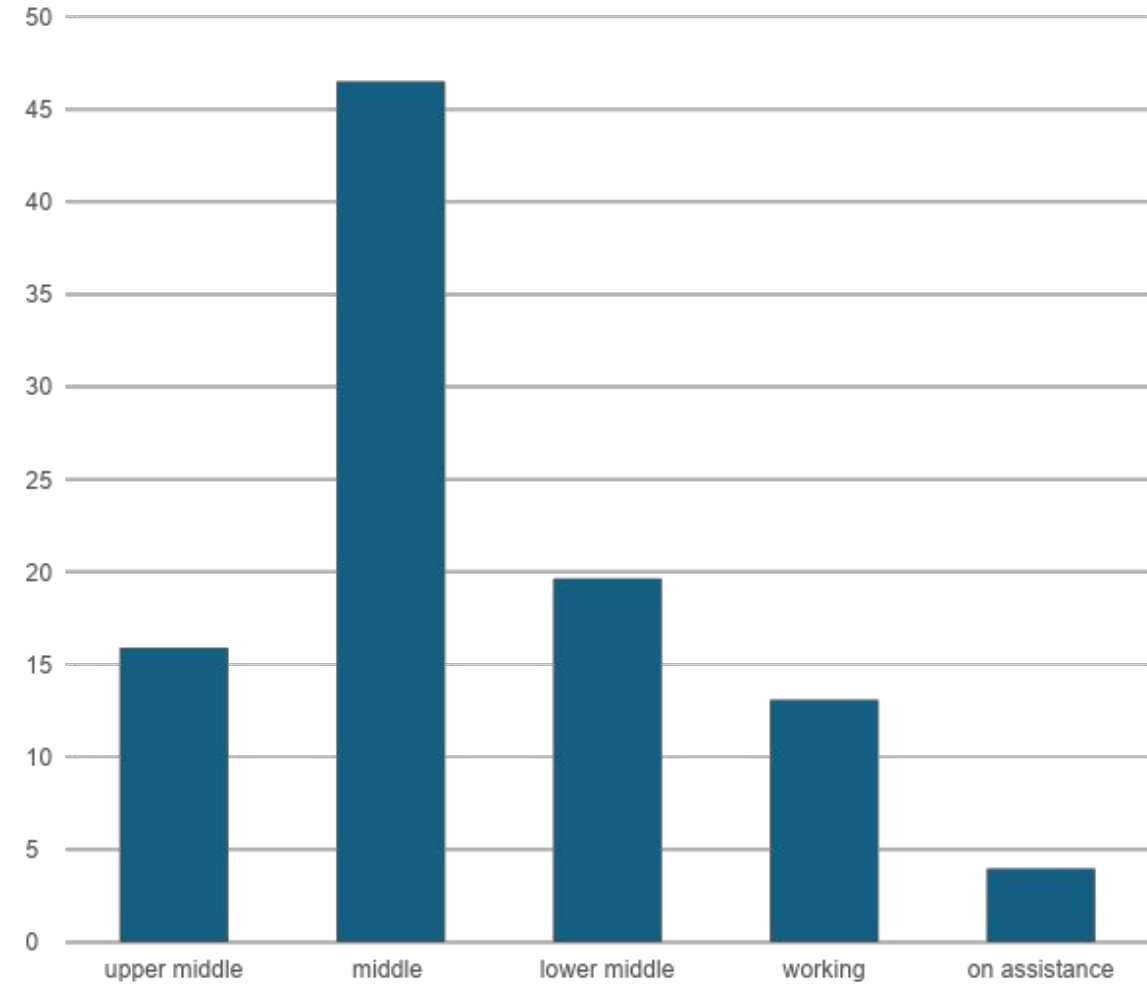


Socioeconomic status

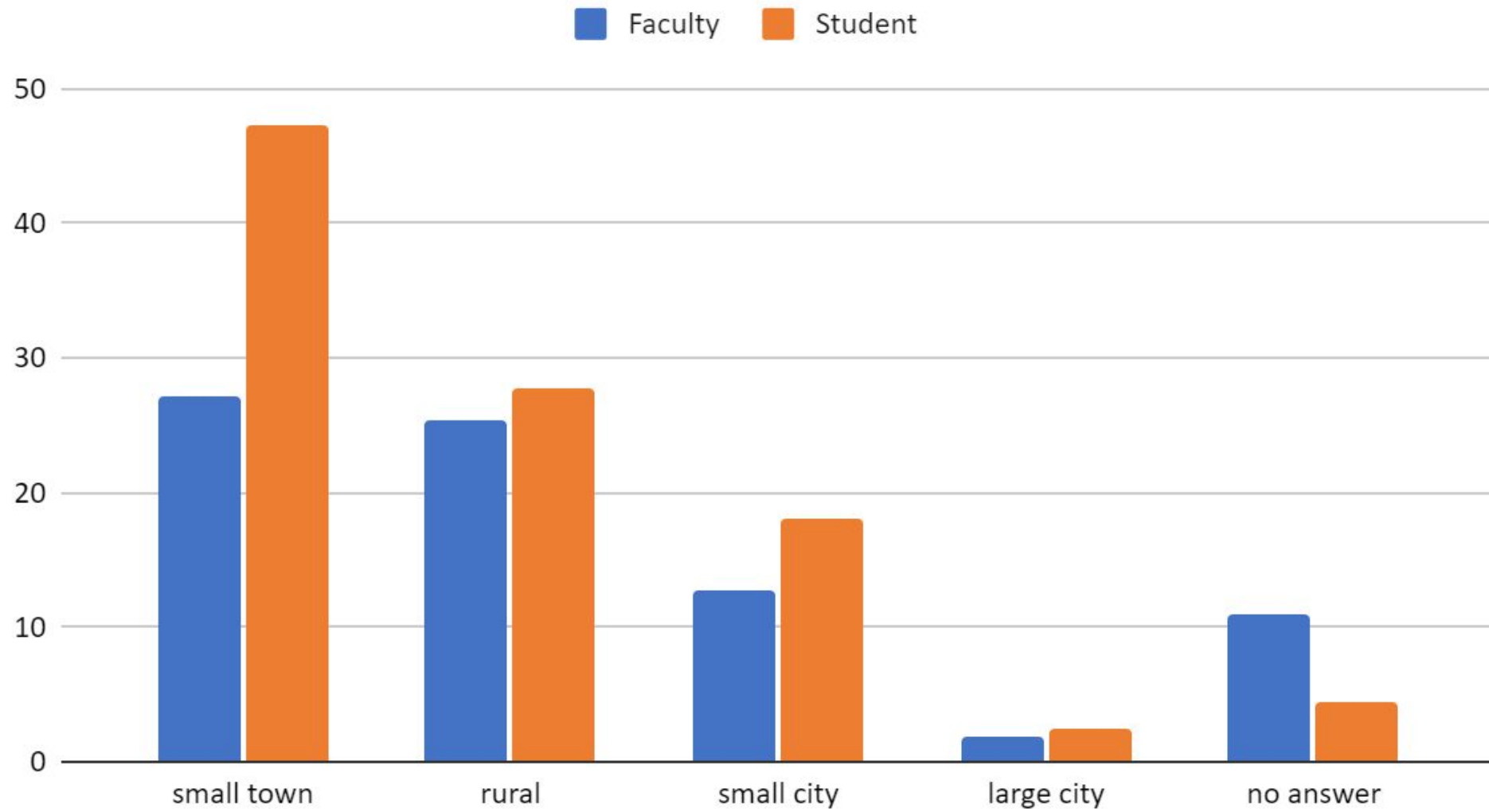
Faculty (%)



Students (%)

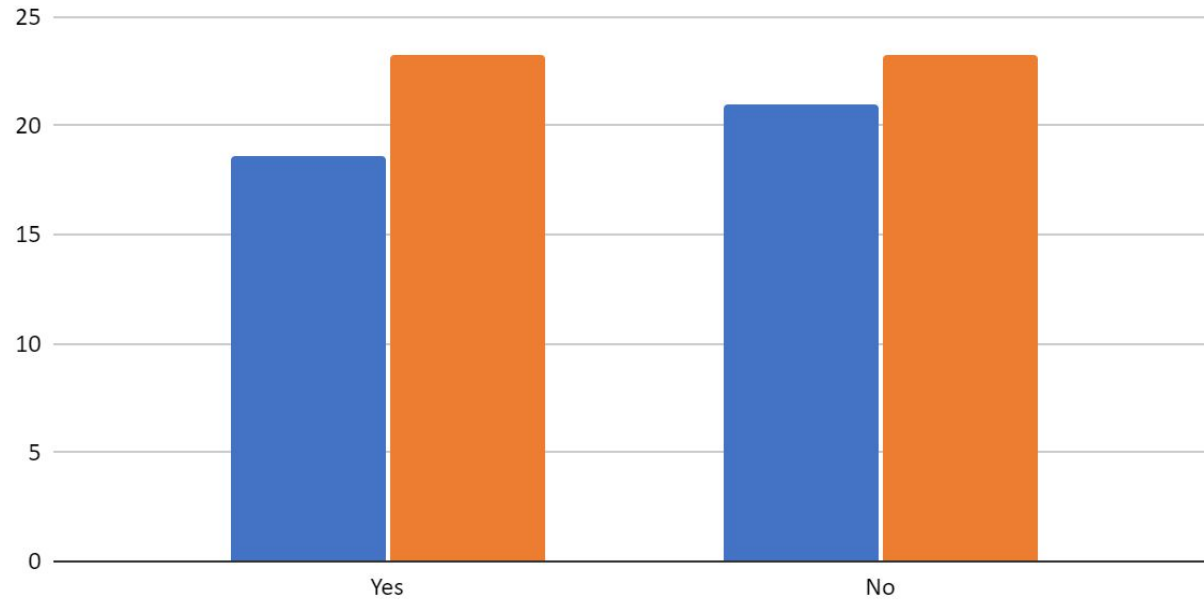


Home community



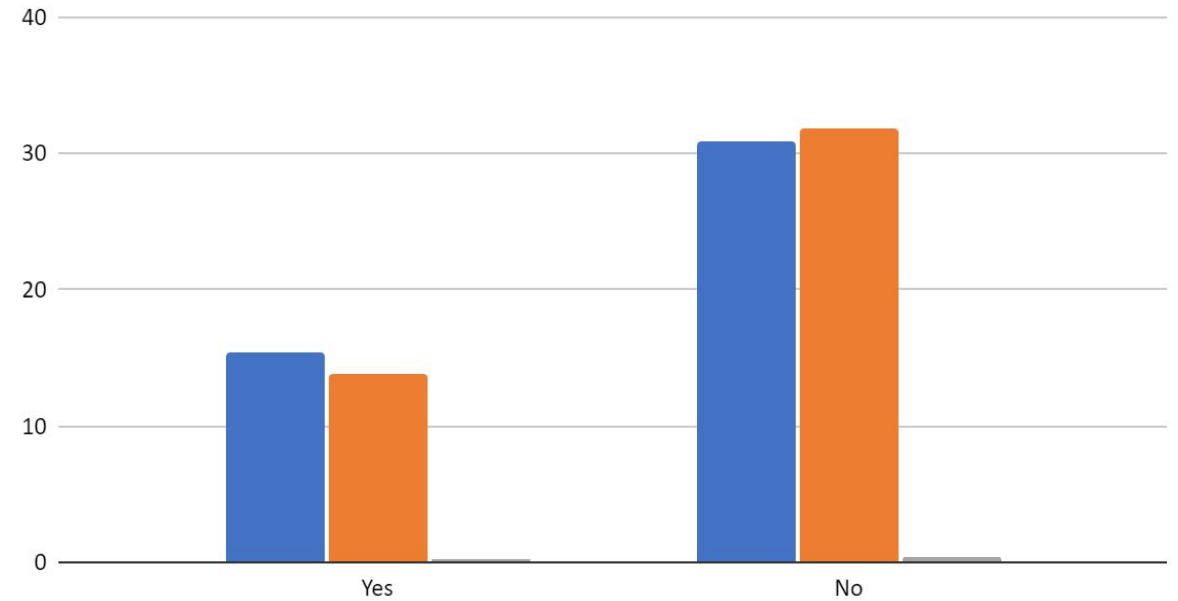
Percentage first-gen faculty

Male Female



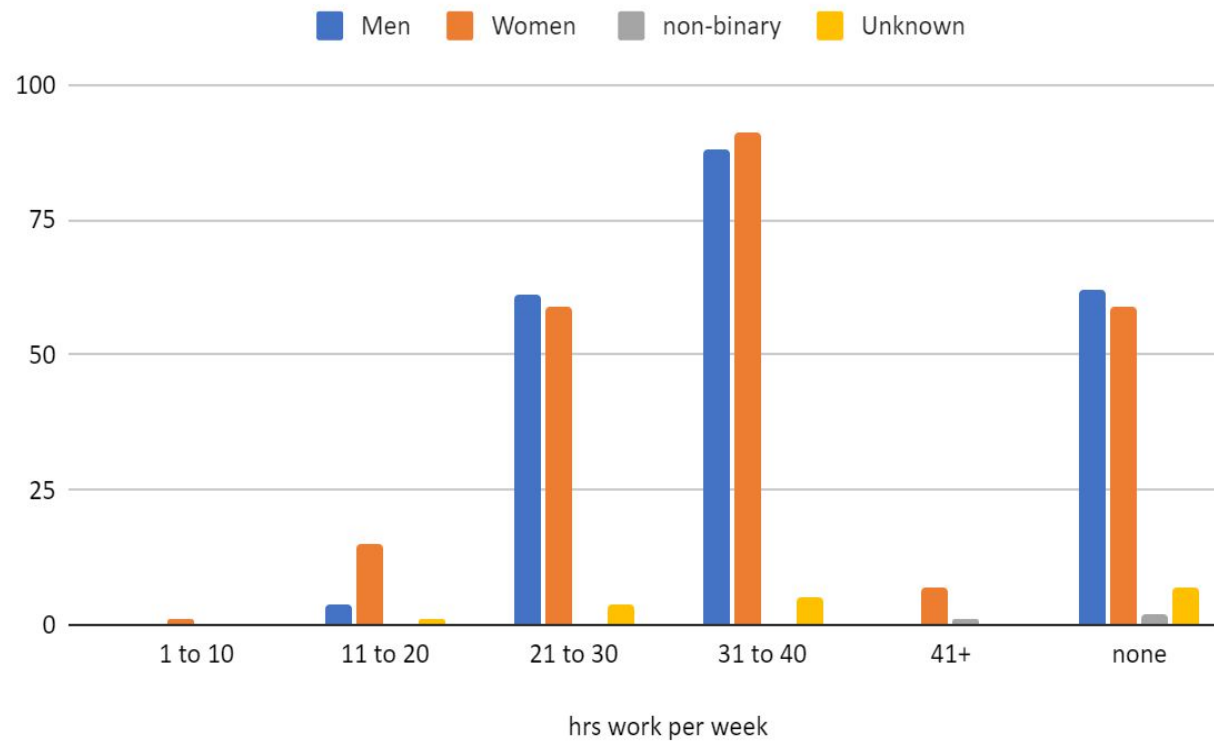
Percentage first-gen students

Men Women non-binary

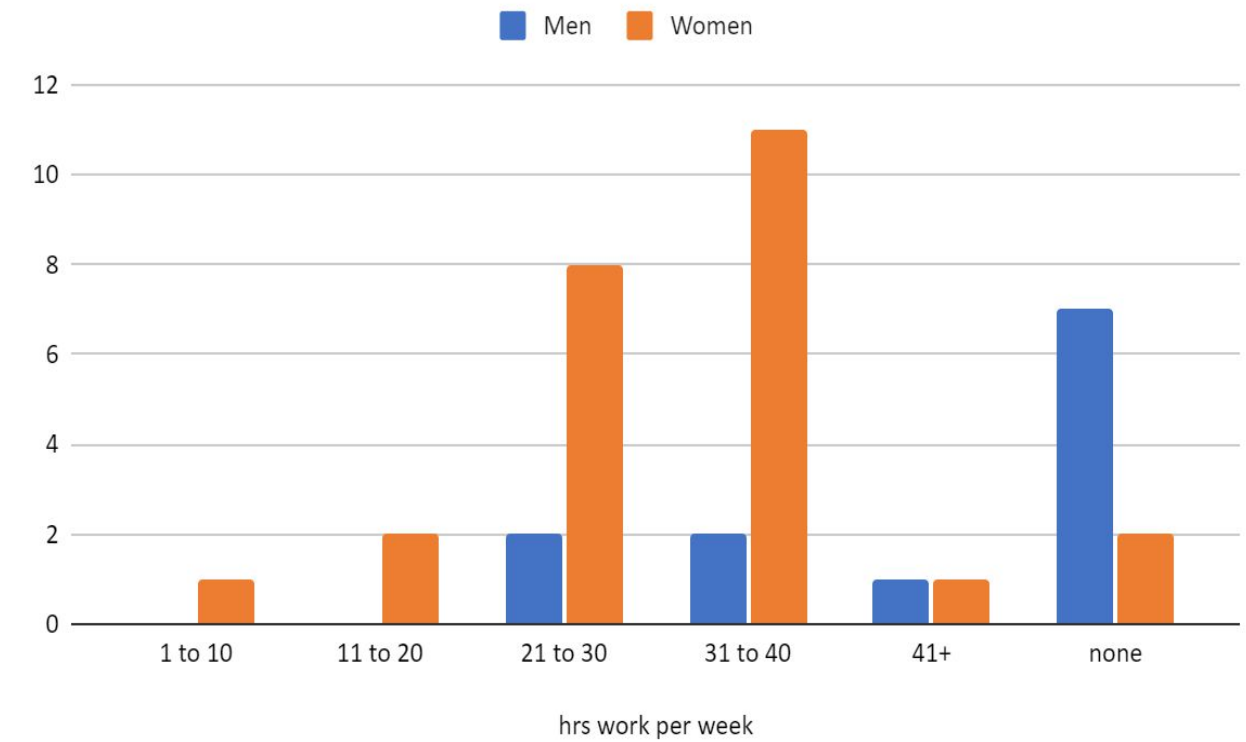


Student & Faculty: T test $p = 0.5$

Student hours worked a week

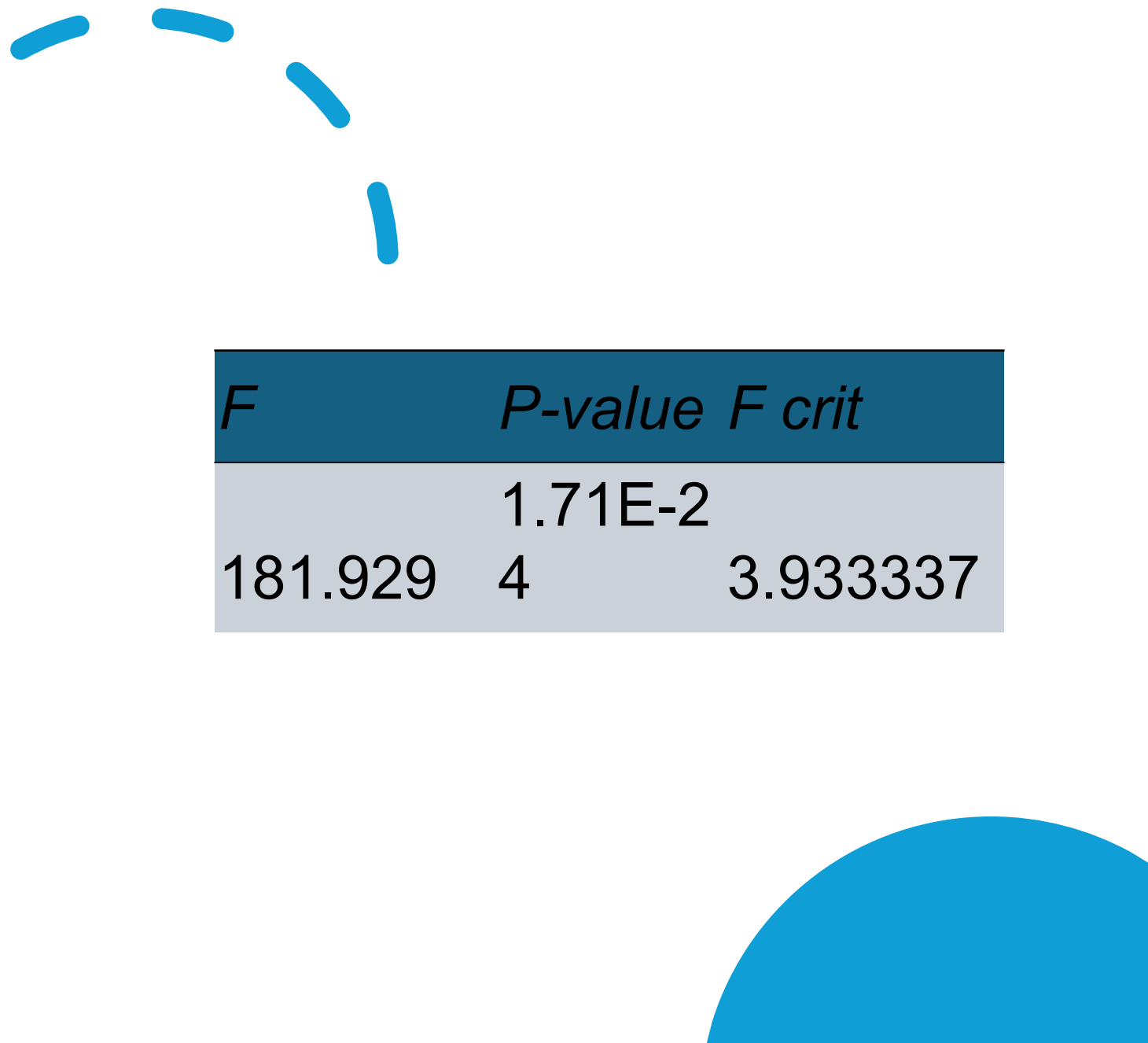


Faculty hours worked a week (in college)



All data

- Averages compared via ANOVA



<i>F</i>	<i>P-value</i>	<i>F crit</i>
181.929	1.71E-2	3.933337



Keep in mind...

- Strongly agree- 8
- Agree- 7
- Somewhat agree- 6
- Agree- 5
- Neither agree nor disagree- 4
- Somewhat disagree- 3
- Disagree- 2
- Strongly disagree 1

Scale:

> 5 Agree

4 - 4.99 Neither

< 3.99 disagree



	I believe I can achieve success	My parents are willing to sacrifice for me to go to college.	I have to hide my interest in more college from my family.	Helping out my family is more important than school.	My family is afraid that I will come back from college "changed."	I try to go home on the weekends as often as I can.	I will have to move away from WV for a job that requires a college degree.	I have been told not to go into debt for things like college	I was afraid I would get lost or overwhelmed in college.	My family didn't want to do their paperwork for me to get into college.	West Virginians really don't need outsiders coming in trying to "fix" us.	I don't trust medical professionals .	For most common problems I prefer home remedies over doctors.
--	--	---	---	---	--	--	---	---	---	--	--	--	--

Students	agree	agree	disagree	neither	disagree	agree	disagree	neither	neither	disagree	disagree	disagree	disagree
Faculty	agree	neither	disagree	disagree	disagree	disagree	disagree	disagree	disagree	disagree	disagree	disagree	disagree

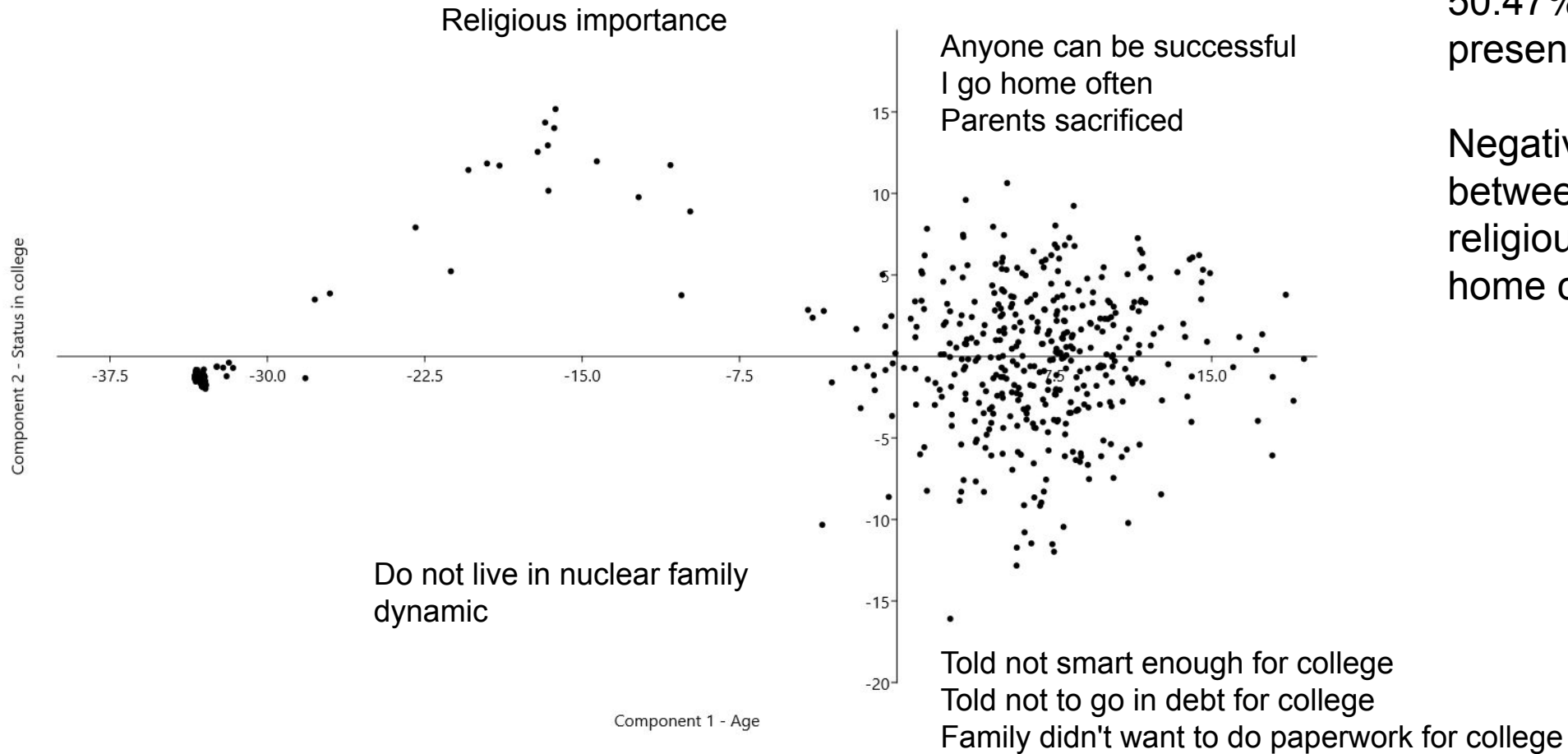


Teachers	I could only encourage "smart kids" to go to college.	I could easily have gotten a job right out of high school.	My school taught me how to get scholarship s and loans for college	I enjoy math.	I had a good teacher in high school.	I enjoy science.	I had a good science teacher in high school.	I would have done better in high school if I had more attention from teachers.	I felt my high school experience prepared me for college.	I have been told that I am not smart enough for college.	It is important for me to finish my degree in four years.	I am happy with my major and I will change it. I leave.	I came to college knowing what job I want when I graduate.	I would rather not take classes that are not part of my major.	I would get better grades if teachers did a better job of teaching.
-----------------	--	---	---	----------------------	---	-------------------------	---	---	--	---	--	--	---	---	--

Students	disagree	neither	disagree	neither	neither	agree	agree	disagree	disagree	disagree	agree	agree	neither	neither	neither
Faculty	disagree	disagree	disagree	agree	neither	agree	agree	disagree	neither	disagree	neither	agree	disagree	disagree	disagree

	How many extracurricular groups were you involved with in high school?	How many extracurricular groups are/were you involved with in college?	How many civic or church groups are you involved with?	Greek life	non Greek activities	spend time alone	online	Bar/club	private parties	Board/card games	roleplay	card games	Knit, crochet, quilt, or sew?	craft	outdoor activities	amateur sports	I make most decisions in order to please myself.
Students	2	less than 1	less than 1	never	never	sometimes	sometimes	rare	rare	rare	never	never	never	never	rare/sometimes	never	agree
Faculty	2.3	1.5	less than 1	never	rare	sometimes	rare	rare	rare	rare	never	never	never	rare	rare/sometimes	never	neither agree/disagree

PCA - exploration



50.47% of variation is present in PCA 1 and 2

Negative correlations between family dynamic, religious importance, and home community type

Rank correlation

[raw data.xlsx](#)

<https://docs.google.com/document/d/11y0leKa2UwxyhRgFstK1Gtg7xCdYAlO2/edit?usp=sharing&oid=110514391935896921038&rtpof=true&sd=true>

Acknowledgements

- Special thanks to Dr. Marty Laubach at Marshall University
- This research was made possible WV Higher Education Policy Commission, STaR Division, the NSF the First2 Network NSF INCLUDES Alliance HRD-1834569, HRD-1834575, HRD-1834586, HRD-1834595, HRD-1834601

