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Recommendations for Mitigating COVID-Related Impacts on Undergraduate STEM Students

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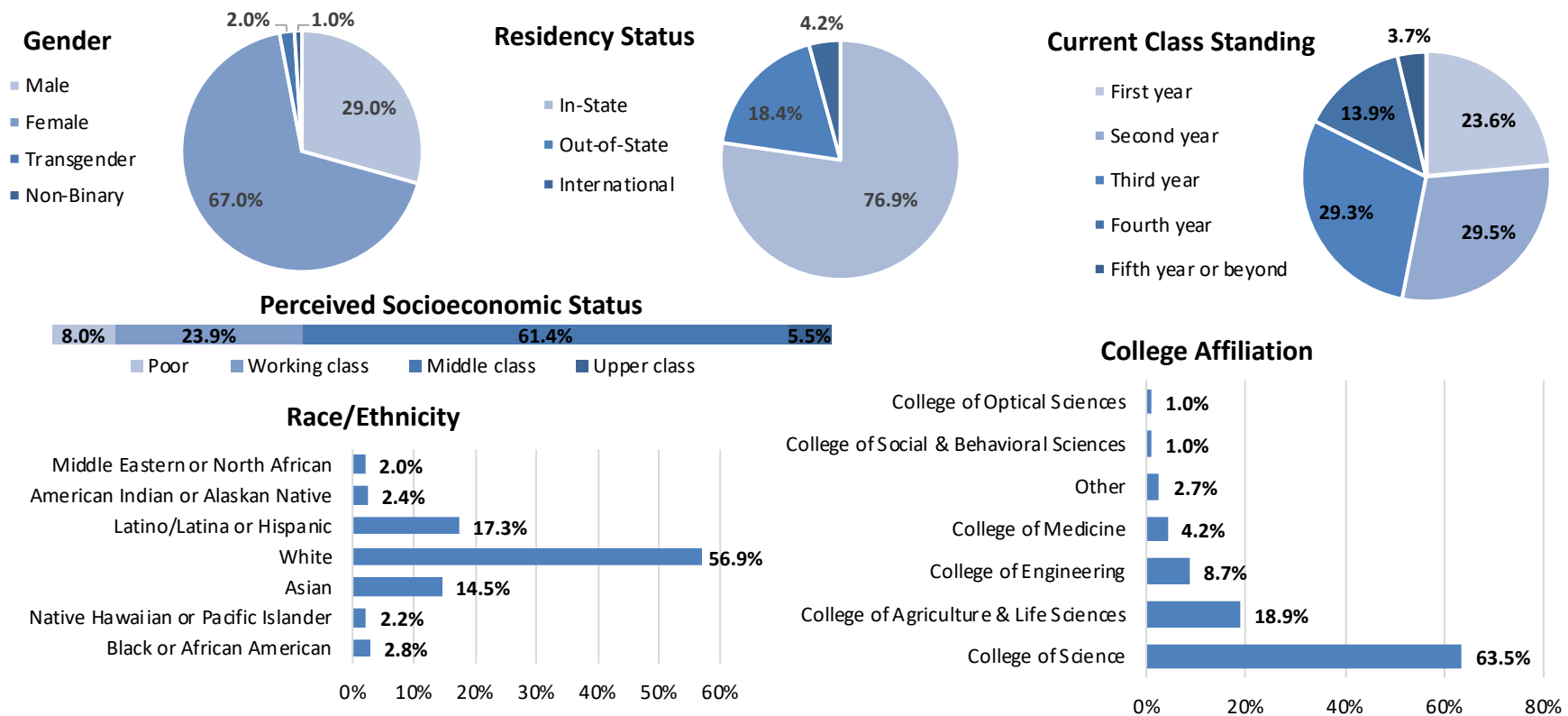Southwest Institute for Research on Women (SIROW)

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https://wise.arizona.edu/research

THE UNIVERSITY OF ARIZONA

Methods and Sample

- A confidential Qualtrics survey was administered between 5/4/20 – 5/29/20.
- The survey addressed three areas: 1) STEM academic experience and progress; 2) STEM persistence; and 3) STEM related career and professional development.
- 403 undergraduate students fully completed the survey (3% of all UA STEM undergraduate students).*
- Data were not weighted.

Gender
- Male
- Female
- Transgender
- Non-Binary

29.0%
67.0%
2.0%
1.0%

Residency Status
- In-State
- Out-of-State
- International

76.9%
18.4%
4.2%

Current Class Standing
- First year
- Second year
- Third year
- Fourth year
- Fifth year or beyond

23.6%
29.5%
29.3%
13.9%
3.7%

Perceived Socioeconomic Status

8.0%	23.9%	61.4%	5.5%

- Poor
- Working class
- Middle class
- Upper class

Race/Ethnicity

Category	%
Middle Eastern or North African	2.0%
American Indian or Alaskan Native	2.4%
Latino/Latina or Hispanic	17.3%
White	56.9%
Asian	14.5%
Native Hawaiian or Pacific Islander	2.2%
Black or African American	2.8%

College Affiliation

Category	%
College of Optical Sciences	1.0%
College of Social & Behavioral Sciences	1.0%
Other	2.7%
College of Medicine	4.2%
College of Engineering	8.7%
College of Agriculture & Life Sciences	18.9%
College of Science	63.5%

* Based on Fall 2019 enrollment

1. Dedicate substantive time to review key concepts from spring 2019 in fall 2020 course. Hold free standing review sessions in early fall 2020.

84% of respondents reported they have faced challenges transitioning to online STEM coursework.

35% of respondents reported being concerned they would not learn enough in online STEM classes to proceed with their academic program as planned.

"While I still was able to keep up, I am not confident in all of the content presented to me and it worries me to think I am underprepared for future courses because the transition online jolted my learning methods."

2. Evaluate the feasibility of scaling-up existing research opportunities and internships for STEM students in academic year 2020-21.

58% of respondents reported that the COVID pandemic had a **negative impact** on their involvement in required research or projects

62% of respondents reported that a research experience or internship had been **cancelled or postponed** due to the COVID pandemic.

"Hands-on research internships in labs that I applied for over the summer have been cancelled and replaced with a virtual training. Although I am grateful, it won't be the same learning experience in conducting actual research. I may have a harder time finding another position/job once I return to campus in the fall as well."

Full Report: https://wise.arizona.edu/research

3. Encourage and enable flexibility in curricular and course expectations in order to facilitate persistence and success among students who have had to take on additional caregiving responsibilities due to COVID.

28% of respondents have taken on additional COVID-related caregiving responsibilities. URM women were the most likely to identify as caregivers.

Caregiving students cited **more challenges** on average than non-caregiving students.

"I've had to babysit more on top of trying to focus on my zoom online classes and do homework. I've had to do all of my parents grocery shopping and anything that is outside because they still work and have to quarantine themselves."

4. Develop standardized policies for how information is shared with students and how expectations are communicated in online contexts.

38% of respondents reported being dissatisfied with the quality of STEM classes since moving online.

Difficulty keeping track of assignments and communicating with instructors were commonly cited challenges.

"Some professors are doing great with helping and some aren't. Some professors did not move anything back or drop any assignments and I understand that being a professor is extremely difficult in a way I won't understand but not changing the course at all during this time is almost cruel."

Recommendations Summary

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2. Evaluate the feasibility of scaling-up existing research opportunities and internships for STEM students in academic year 2020-21.

3. Encourage and enable flexibility in curricular and course expectations in order to facilitate persistence and success among students who have had to take on additional caregiving responsibilities due to COVID.

4. Develop standardized policies for how information is shared with students and how expectations are communicated in online contexts.