RUTGERS
School of Arts and Sciences

Office of Undergraduate Education
Rutgers, The State University of New Jersey
35 College Avenue
New Brunswick, NJ 08901

Web: http://sas.rutgers.edu
Phone: 732-932-8433
Fax: 732-932-2957

Some Key Takeaways from SAS OUE's December 2, 2020 panel
Voices of Diversity: Women in STEM

On December 2, the second panel in our series *Voices of Diversity: Rutgers Student Stories* was hosted by the SAS Office of Undergraduate Education and generously supported by a Diversity Innovation Grant from the RU-NB Division of Diversity, Inclusion, and Community Engagement (DICE).

This series of panels – 4 planned for this year – is designed to provide a unique opportunity for faculty and instructors to directly listen to and learn from the varied personal experiences of multiple individuals in our incredibly diverse, intersectional, Rutgers student body. Our Student Advisory Board -- a team of 13 undergraduate students that represent the breadth and richness of our SAS community, including a range of majors and class years – is developing the panel topics for the year and is selecting panelists based on the essays of de-identified applicants.

We are extremely grateful for the considerable time and effort the Student Advisory Board and volunteer panelists invested in designing, preparing for, and participating in *Voices of Diversity*. Thank you to Eliza Blau, Jenevieve DeLosSantos, Nicole Gangino, and David Goldman in SAS OUE for their work on this initiative and to Jackasha-Janaee Wiley, Director of Upward Bound & Pre-College Initiatives, who moderated the December 2 panel.

The students shared many varied experiences and perspectives during the panel. Unfortunately, it is not possible to include all their helpful and insightful contributions in a brief document. Below, however, we have summarized a few common themes that emerged from the students' comments.

Please plan to join us for our Spring 2021 panels. The dates and topics for these panels will be announced early next semester.

Voices of Diversity: Women in STEM

Several common themes emerged during the panel:

Feelings of impostor syndrome and lack of confidence
"You have to break the stigma of not seeming smart enough, and to deal with the preconceived notion growing up that you don't belong in the sphere of logic and rationality in science… it can be easy to lose confidence and then not do well."

- The panelists consistently expressed that they often deal with imposter syndrome and feeling like they always need to prove/assert their intelligence and that they belong.
- The students shared that it is easy to lose confidence when you hear people doubting whether you "belong," sometimes explicitly and other times more subtly.
- For women of color, they sometimes feel that classmates and others assume that they only got there because of affirmative action and other programs targeted at underrepresented and less privileged groups such as Rutgers Future Scholars and EOF.

Stereotype Threat

"I feel pressure to represent women in my STEM classes. It makes me scared to ask questions because I don't want to sound less capable."

- Women are told, from childhood onward, that girls do not belong in STEM fields.
    - Encouraging high school teachers can make a big difference.
    - People outside the university express shock when a woman says she is a Math major, for example.
- One BPOC woman who is committed to a career in surgery was told by a surgeon she was shadowing that "you don't look like a surgeon;" another interested in orthopedics had advisors that kept pushing her to women-dominated fields like pediatrics and ob-gyn.
- Women in STEM depend on each other and words of inspiration from advisors and faculty as they face a lot of negativity outside of the classroom -- encourage the students to keep pushing and to trust that the process will get them there. They need reassurance that they can do science.

Issues of representation and inclusion are not discussed enough

"Many departments and students avoid discussing issues of representation and inclusion and I worry that if I raise these issues, I will appear unprofessional, not confident, less qualified than other students, and not dedicated to my studies."

- Panelists pointed to some positive examples of departmental and individual instructors' efforts to consciously and explicitly discuss the underrepresentation of women in STEM.
    - One female computer science professor openly discussed the underrepresentation of women in the field and actively encouraged female students to engage and participate, making them feel supported and confident in doing so.
    - A chemistry student expressed receiving supportive and realistic advice, particularly once she got past the lower-level courses and was interacting with a lab PI.

The importance of supportive female role models and mentors, and the lack thereof, in students' early years at Rutgers

"The female professor in my intro class encouraged women to speak-up and she shared her own stories about being a woman in STEM."

- Given the underrepresentation of women in STEM faculty positions, it is sometimes difficult for the students to find role models, especially early on during their academic careers because few female instructors teach the introductory-level courses.
    - There are even fewer BPOC women faculty.
- The students expressed the critical value of having supportive female faculty members and others as mentors and expressed that it would be helpful to facilitate relationships between students and mentors earlier on in the students' time at Rutgers. Many female students lose confidence in early classes and then leave those fields—the students identified this time as a key potential opportunity to better retain women in these courses and majors.

Experiences in Courses

"The instructor told the class 'You can ask questions, as long as they're smart questions.' This created a fear of asking questions and it increased the competitiveness in the class. Questions should be an opportunity to learn, not to show off how smart you are. Students should be allowed to ask questions just to make sure they understand something."

Concerns about classroom experiences

- Classes (especially large, introductory lecture courses) were a clearly a primary source of students feeling disconnected and uncomfortable in STEM departments.
- Instructors do not always allow for/encourage student questions and learning; the students all expressed that class should be a place where you can ask questions and be comfortable.
- Female peers seem to feel even more shy/hesitant to ask questions in large STEM courses in the remote environment, for fear of feeling unintelligent, taking up too much space, or appearing to be a "kiss-up" to the professor.
- There is a lot of competition among premed students. Everyone has fears, but few people want to talk about/admit them. This is likely also true for students pursuing other grad/professional school paths. *"It can be toxic when students are trying to be better than each other."*
- One student heard about (but didn't herself take) a course where students were told at the outset that only 10% of the class can get an A, which leads to massive stress for some students.

Suggestions for improving classroom experiences

"Be an advocate and a person that students can go to if they need help. Show the students you care. This, coming from our high-status professors, means so much."

- Faculty being interested in and supportive of students' career aspirations and making personal connections really helps.
    - Getting to know students informally as people makes it easier for students to then approach you later with questions and concerns about the course material.
    - Promptly replying to emails, remembering what students tell you about their lives, and following up on those things means a lot to students.
- Tell personal stories and incorporate them into the course material. Relate the course material to instructors' own research and personal experience. Doing so makes the course material more concrete and understandable.
- Especially in large courses, it is helpful to allow students to participate in different ways. *"Notice what works well for your students and expand on the ways where they seem to be most engaged."*
    - Discussion boards are more inclusive for introverted (and other) students.
    - Breakout rooms are very hit or miss. When using breakout rooms, give students discussion questions to consider ahead of time and limit the amount of time for the breakout room discussions.
    - Asking students to share their own experiences that relate to the course material can make it more realistic and easier to understand.
    - For many students, especially international students, requiring answers on the spot can be very difficult as they have to immediately come up with thoughts while trying to listen to the professor.
- Share study skills, test strategies, and other tips with students and convey to them that "you can do this."

- How you talk to students really matters. Creating a comfortable environment where students feel recognized as human beings is critical.
    - Be sensitive to student anxiety levels and their fear of not sounding smart when answering questions or asking for answers. One student described an incident as an instructor 'gaslighting' another student as he guided the student through a questioning process when the student was clearly feeling very uncertain about his answers.
    - Instructors should ask themselves how they can be more empathetic and compassionate to students while trying to understand the issues they are facing, especially during the pandemic.
    - Be there for your students by boosting their confidence, show them you care, and that they can come to you with questions and for help.
- Students may feel disadvantaged coming into courses where other students have more background experience and knowledge. Be compassionate and understand that students have different backgrounds, and go over background material at the beginning of the semester.
- Ask for feedback throughout the semester, rather than just at the end, and adapt accordingly.

Teaching Assistants and Learning Assistants as helpful supports

"There can be 20 or 30 students trying to talk to the professor at once in office hours. TAs really can give more individualized attention and are really important in helping me understand the material better and answering my questions. TAs really make or break the experience."

- The panelists consistently expressed how important and valuable teaching and learning assistants are for assisting and supporting them.
- TAs are often seen as more approachable, less intimidating, and more immediately involved with the students than instructors, especially in large introductory courses. This encourages students to ask questions and more deeply engage with the course material than they would be able to/feel comfortable doing in large lectures.
- Learning assistants are an underutilized but helpful resource, and can often give more tailored, one-on-one attention than instructors with many students in a large course. It is especially helpful when LAs have taken the same courses with the same instructors as the students.

Experiences outside the classroom

"The graduate student that I was working in a lab with let me know that, even in STEM, you can just relax. Lots of students have a lot of stress about STEM and it really helps to know it is okay to relax."

- Working in labs is an excellent opportunity for learning and building important relationships with mentors. However, it can be difficult to figure out how to connect with lab research opportunities. ARESTY provides one way to do so, but especially first-generation students feel uncertain about how to get this kind of experience.
- Large organizations like Women in Computer Science are well-known and well-advertised, but smaller organizations go unnoticed. It would be helpful for faculty and departments to guide students to these types of groups and clubs.
- Not all organizations/clubs are welcoming and supportive.
    - One student shared that living in a pre-med dorm was a very unwelcome, competitive environment.

    - Students shared stories about a large discipline-based club meeting that was all male and very unwelcoming to women, which discourages women from pursuing a STEM career path.
- Professional associations and social media (e.g., Chemistry Twitter) can be important and useful sources of information and support.
- Scholarships tailored to particular fields (and sometimes targeted at underrepresented groups) can be critical sources not just of financial support, but also other information, resources and opportunities, and mentors. Departments and instructors could do more to share scholarship opportunities with students.
    - Preparing to apply to any kind of graduate program is expensive and this impacts some students more than others.
- Panelists mentioned the great value of programs like ODASIS, EOF, and the Douglass Living Learning Communities in helping them feel encouraged, supported, and connected. It helps when faculty direct them to these resources.
- Students have also formed study groups and discipline-based clubs to help fellow students understand that we are all in this together.