

NIMBioS

National Institute for Mathematical  
and Biological Synthesis

# 8<sup>TH</sup> ANNUAL UNDERGRADUATE RESEARCH CONFERENCE AT THE INTERFACE OF BIOLOGY AND MATHEMATICS

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## Evaluation Report

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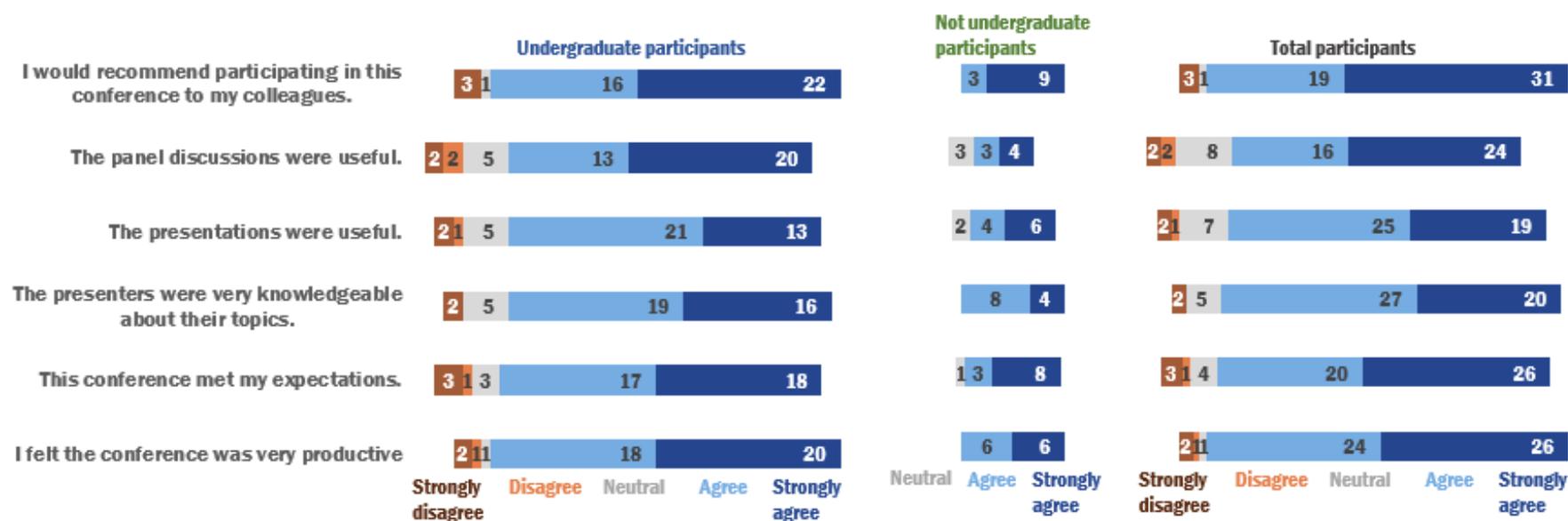
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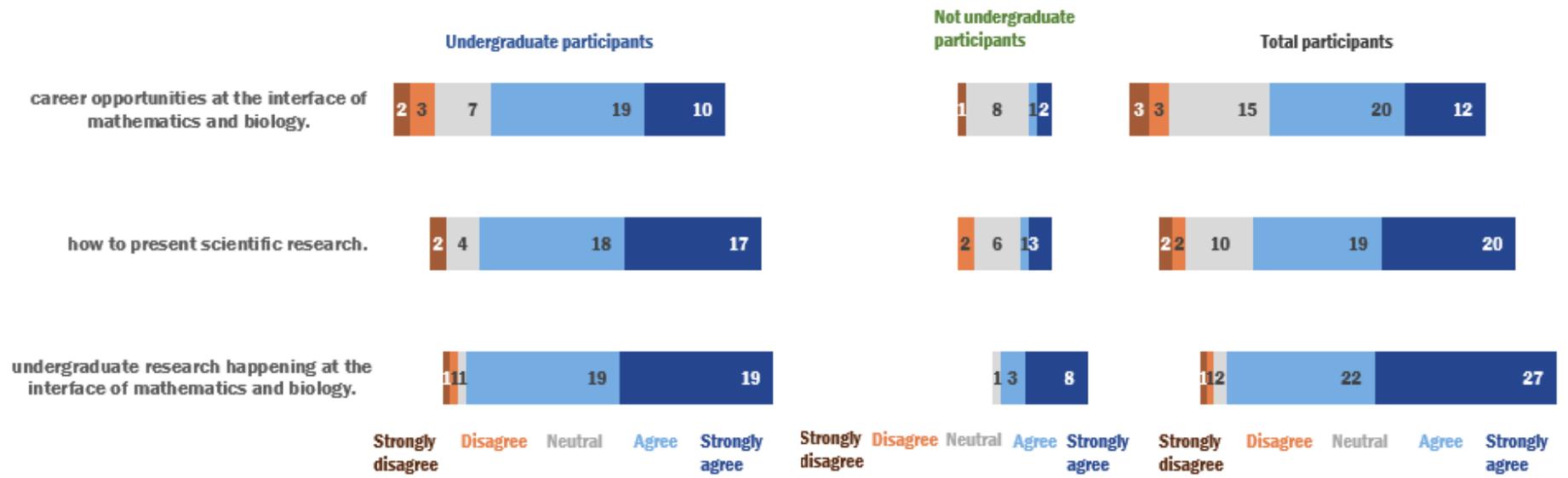


54 participants took a feedback survey of the 8<sup>th</sup> Annual Undergraduate Research Conference (URC) at the interface of Biology and Mathematics – 42 (78%) of participants’ responses were undergraduate students and 12 (22%) of the participants’ responses were not-undergraduates.

Participant level of agreement about the various aspects of the URC for undergraduates and non-undergraduates

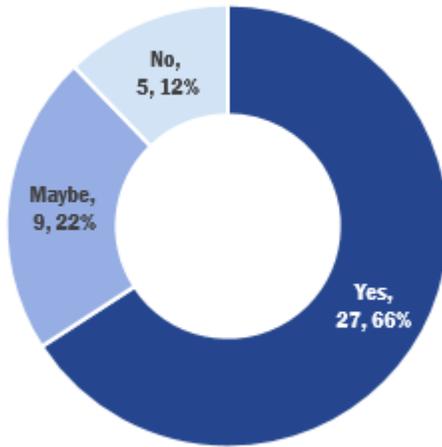


Agreement with “As a result of participating in this conference, I am more knowledgeable about:” for **undergraduates** and **non-undergraduates**

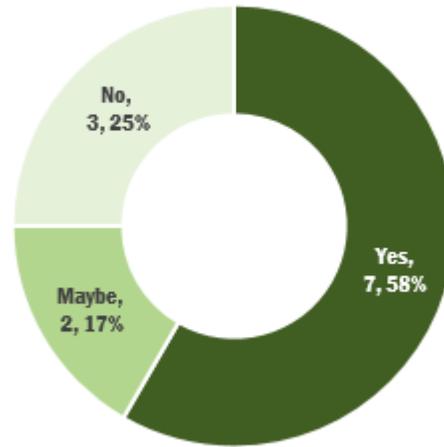


Responses and qualitative feedback about whether the URC helped participants make connections with others across the disciplines of math and biology by **undergraduates** and **non-undergraduates**

Undergraduate participants



Not undergraduate participants



“As a biology major, I never saw the connection between math and biology. It always puzzled me that natural phenomenon can be modeled. Attending this conference helped put into perspective that life can be modeled.

I've made connections by emailing professors and am even considering applying to University of Tennessee for their graduate program.

“I was able to communicate and interact with fellow undergraduates and discuss different topics of research with them and where they are doing their research. I was also able to talk to some of the presenters and researchers on the panel about my own career choices and path and was able to get some emails in order to contact people in the field I am looking into in going. Overall, this event was extremely helpful and beneficial and I was able to gain a lot of knowledge specifically in the field of Biology.

“It felt as if representation at the conference was largely pure mathematicians. There were few biologists and bio-mathematicians.

“The conference provided ample opportunities to meet and connect with individuals from very different disciplines who were working in math bio and really expanded my awareness of how undergraduates from diverse disciplines were being integrated into research.

I met several faculty from regional 4-year schools and many talented undergraduates with interests in math biology. Very useful.

It was very helpful to meet students and other faculty across both mathematics and biology departments.

Met interesting students doing fine research. Many of them highly motivated and hard working.

“I met several people with whom I hope to create a lasting connection.

No qualitative feedback provided.

 Networking and interacting with other poster presenters about their reflections on their research experiences.

It further exposed me to others involved in applied mathematics and allowed me to not only network with professors but students as well.

I was able to meet many students who were working on similar things to what I was doing. It was nice being able to communicate my research and being able to listen to others research.

I met a handful of biomath faculty at different institutions that I wouldn't have gotten to meet otherwise.

I felt that I was able to better understand what my peers are doing at the interface of math and biology.

I met a lot of new people.

I got to meet a professor at UTK.

 I made some new friends and contacts

There weren't too many adult professionals so it was hard to make connections with more experienced math biologists.

I feel that I had the opportunity to meet many people in the field but I am unsure if I made any strong connections with others.

There are a lot of scholars to connect with, but the two-day schedule was really tight. We were already tired after all those scheduled talks and sessions. I feel if there's more leisure time just for socializing would be great to make more connections.

I have not talked to any one that I was introduced to.

I definitely met many adults in the field and I am happy to have done so, but I have not contacted anybody since, just because it is a little early for me to be thinking about graduate school, future career options and so on.

I made friends who I am still keeping in touch with regularly on Facebook and otherwise. It is really nice to have people to shoot questions to regarding research inquiries that others may not be able to address at my own university.

I have been able to get contact information of someone that is doing the same research as me.

I met other men and women who may work towards a graduate degree and become colleagues.

 There were people from the REU I had just participated in at the conference and so I sort of was around them most of the time. No fault of the conference's organization, I'm just not exceedingly sociable.

It felt as if representation at the conference was largely pure mathematicians. There were few biologists and bio-mathematicians.

I felt like there weren't necessarily a lot of people that were both math and bio. It seemed like people were either strictly math or bio and it was hard to find a mixture.

Qualitative feedback for, “What was the most useful aspect of the conference?”, by undergraduates and non-undergraduates

 I enjoyed hearing about other students' work and being able to present my own in a welcoming environment.

Presenting my research in a talk. It has given me a lot of confidence in myself to present in front of a big crowd

The variety of projects and the networking with others were useful.

Presentation by other students.

The most useful aspect of the conference was networking with fellow undergraduates and speakers to converse of subjects of interests. I learned more about the application of mathematics to environmental factors and will now take that into consideration when evaluating environmental factors.

The fact that the conference was small and student driven.

Getting to see the collaboration of mathematicians and biologists, and its impact on society motivated me to work with others to solve problems that can potentially make a difference in our society.

Get to know other cool fields of research in math and biology. Indeed an eye-opening experience to help me discover the opportunities in math and biology.

The talks were great, the posters were great as well.

Meeting the schools

The career panel. Getting to hear from faculty and graduates about what works and what doesn't was very valuable.

I think the most useful aspect was the poster presentations.

The meals with mixed groups of people were really fun and interesting.

Career panel and graduate school fair

Getting a better understanding of what it is like to present undergraduate research and getting to talk to other students about their research.

Meeting like-minded undergraduates and professors

Poster session. Presenting my own research and listening to other people discuss theirs.

Seeing what other undergraduate students were doing was really valuable. I like to see other peoples' work and I hadn't been to a math bio conference before so it was really a different world

 The non-undergraduate speakers

Talks and posters

Panel discussions

The most useful was getting to engage one-on-one or in small groups with the participants of the conference such as during the networking times, the poster session, and at dinner.

The conference allowed undergraduate researchers present in a smaller setting than a bigger conference; this allowed them to get some understanding of how conferences work without the stress of larger crowds.

Having students see what other students are working on at the intersection of mathematics and biology.

It is hard to say because every aspect of the meeting was useful

Qualitative feedback for, “What was the most useful aspect of the conference?”, by undergraduates and non-undergraduates, continued.

“The talks are not particularly insightful, since we are still very early in our understanding of either math or biology. However, the students give each other the experience of presenting, and I believe that’s the most useful part of the conference, offering each other an audience.

Graduate Panel

The graduate school panel discussion and the graduate school fair

I feel just the comfortable, open atmosphere of the conference was most useful because it made the experience of presenting for the first time at a conference and interacting with a lot of new people in the field less stressful and more natural.

getting to be exposed to the world of biomathematics research, hearing from people in that field about their experiences, getting to gain experience presenting one’s research

I feel that engaging with like-minded individuals in fields similar to mine was the most useful aspect of the conference.

I found that the most useful part was the panel and the presentation given by the professors and researchers that have PhD’s in their field and are quite knowledgeable about what they are doing. Although I loved seeing everyone else’s presentation, I think that the most useful aspect in my opinion was seeing someone in the field who was doing what I want to do.

The atmosphere and the exchange of information from both undergraduates and mentors!

The grad school discussion panel was the most useful because we are all at that point of finalizing where to go and decisions that we have to make for grad school and that was the majority of the discussion at least the most useful for a senior like me.

Meeting people from all over the country and getting to talk about their research.

Networking and presenting my research to fellow math-biology researchers.

The discussion panel

Meeting fellow nascent bio-math folks, some of whom will, probably, go on to be potential collaborators in the future.

Practicing presenting my research

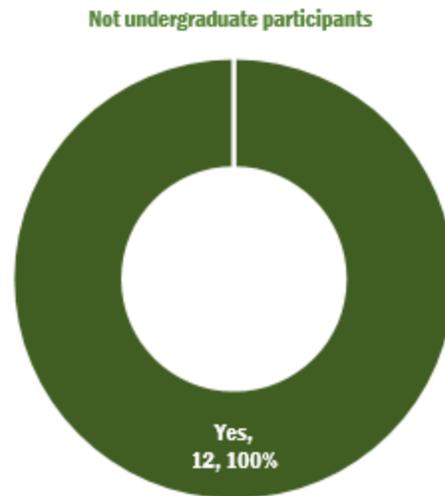
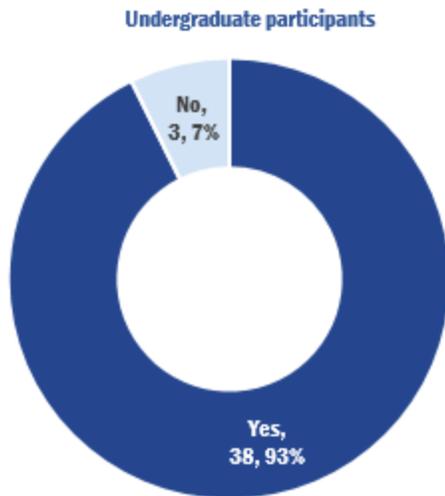
“Undergraduate students gained experience in discussing their original research in oral presentations and one-on-one in informal discussions.

For my student, the conference was an opportunity to present her work to a knowledgeable yet not intimidating audience, and meet others in the field. For faculty, this is a wonderful opportunity to recruit extremely well-qualified potential graduate students for their labs.

To meet young, energetic, dedicated people starting their careers in science.

I gain a great deal from the talks and the poster presentations

Responses and qualitative feedback about whether the URC was successful in achieving its goal of creating a forum through which undergraduates can present research and make new connections at the interface of math and biology by **undergraduates** and **non-undergraduates**



“There were plenty of opportunities to communicate and connect with other students and professors. I only wish the conference was one day longer!

Absolutely – it can be intimidating to present one's research as an undergraduate (easy to convince oneself that one is not really contributing), so knowing that one's peers would also be presenting was excellent.

I think the conference did a great job of making a comfortable environment for undergraduates to present research and meet new people in the field.

People were encouraged to meet, the presentations/posters were organized well, and logistically the whole thing seemed very smooth.

“I felt like there weren't many faculty who came to our poster; mainly fellow undergraduates, which is nice and all, but it would be helpful to interact with more faculty about our work and get their insights and suggestions.

“One of my undergraduate students was very happy to be given the opportunity to meet with other students doing great work. He found it inspirational and an indication that he had made the right decision in his career path.

My student was able to make many new connections with both students and faculty. Presentations were of extremely high quality and the audience was much more informed on the specific topics than is typical a larger meeting.

The structure and operation of the conference did enhance collaboration and networking.

The environment of the conference was very supportive toward undergraduates getting an opportunity to practice presenting their research and finding ways to explain their work with others outside their area. It seemed that the poster sessions were the most instrumental in achieving this.

For my students, this was their first conference and they learned much more than we can quantify.

Responses and qualitative feedback about whether the URC was successful in achieving its goal of creating a forum through which undergraduates can present research and make new connections at the interface of math and biology by **undergraduates** and **non-undergraduates**, continued

 The conference left plenty of time to roam and communicate with others. Also the game we played aloud for communication with others

I heard a variety of topics, some I never thought could be modeled.

Yes meet a ton of new people

I think every goal of this conference for me personally was met, I had great experiences in all regards at this event.

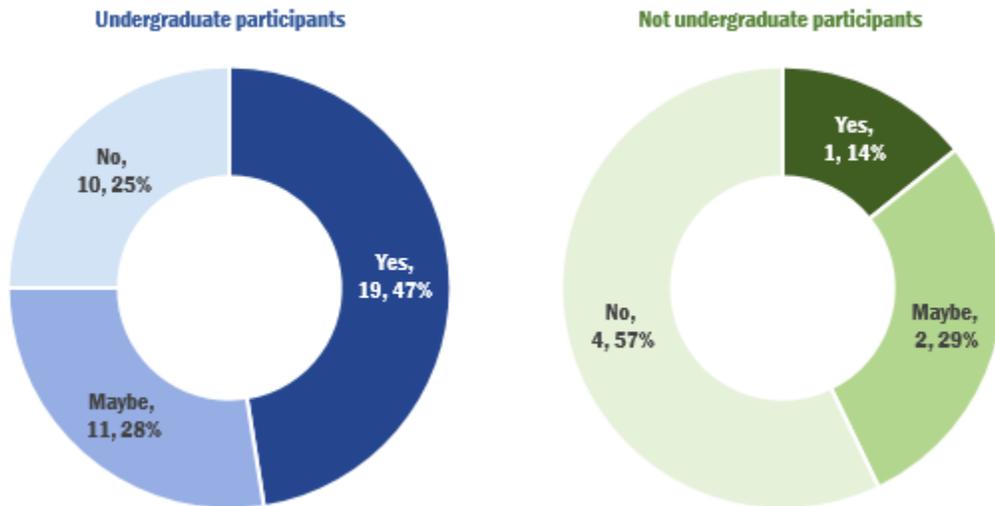
It offered a platform where our research can be heard by other scholars who may have similar interest and get connect with each other.

I am so glad to have gotten the chance to both present my research and to hear others. It was a great environment for discussion!

 The connections with others not so much, myself am less interested in a model of something and more interested in actual results, that can be taken back to the wet lab, it did not appear to many that could fit this bill.

I think the platform was there, but not well-executed.

Responses and open-ended feedback to whether the exchange of ideas that took place during the conference will influence your career plans by **undergraduates** and **non-undergraduates**



Yes. My experience at this conference encouraged me to look at more math-biology opportunities. I got exposed to many more ideas on research

I feel that the exchange ideas strengthened my desire to pursue my existing career plans.

Meeting with other peers who share the same values and interests in research reassures my personal enthusiasm for going to graduate school to pursue more graduate level research.

I really want to go into a specific field choice of marine biology, but find that math and biology play a huge role in this field. So although math and biology are broader topics of my field, I still benefited quite a bit from this presentation and think the exchange of ideas and emails will be useful to me in the future.

The graduate school panel helped to understand the opportunities available to us.

I am still so so so unsure of my career plans. I am glad that the conference presented me with a few more options.

I intend to go to graduate school and study pure math. This conference was definitely interesting but did not change what I hope to do in the future.

Coming in, I knew I wanted to get a PhD in mathematical biology; coming out, that resolve didn't change.

I am pursuing a PhD in Computer Science with a focus on Data Mining and Machine Learning as it relates to healthcare (i.e. genetics, molecular biology, bioinformatics etc.) so this conference allowed me to further diversify my resume and further confirm that I do want to continue researching.

Responses and open-ended feedback to whether the exchange of ideas that took place during the conference will influence your career plans by **undergraduates** and **non-undergraduates**, continued

 I have started to think more about math models that could effect my research. So yes I believe this conference helped me tremendously

It can gave me ideas on other areas of research.

I'm sure I want to go to graduate school

I have a different perspective on my career plans after being at this conference.

Now, my mind has been exposed to math and biology collaboration, and the results' benefits.

 It's possible. Honestly, bio-math is such a vast interdisciplinary field that narrowing down my plans is proving quite difficult, but maybe a connection I've made at this conference can help.

I'm planning on going to medical school, but I think I might take a gap year to learn more about mathematical biology and coding

 I still feel confident in my plans for graduate school and beyond.

Very decided on my career goals already.

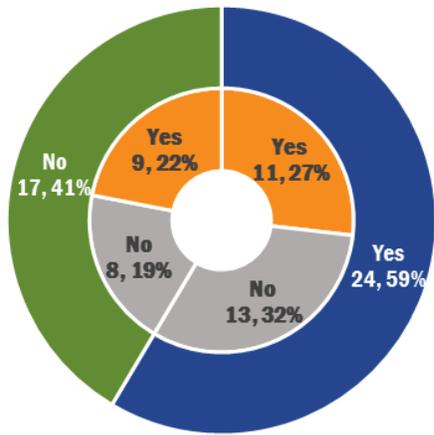
I'm still exploring so it's difficult to even give an answer but I don't think the conference informed my decision to continue doing what I'm doing now versus change course.

It was very basic information that is usually known once you're interested in biomath. More details would have been helpful.

Additional comment (undergraduate who did not indicate a rating for the URC influencing his/her career plans):

 I'm an engineering student so this had no influence on my career plans. I felt that the panels didn't really apply to me.

Responses and open-ended feedback to whether the URC increased the likelihood of undergraduate participants applying to **graduate school** and considering the **University of Tennessee** as a graduate school option



24 out of 41

participants indicated that attending the conference increased their likelihood of applying to graduate school

20 out of 41

participants indicated that attending the conference increased their likelihood to consider the University of Tennessee as a graduate school option

“I am most likely going to continue to apply for graduate school and find that the panel was extremely helpful in determining that decision.

Being surrounded by individuals who are confident and knowledgeable about applying to grad school makes me want to apply even more.

I knew I was applying beforehand but this further confirmed my choice

Yes. While I am not certain what field I would pursue in graduate school, this conference gave me a more open mind about the possibility.

More likely!

“I will definitely apply to UT for grad school. I was unaware that UT had the fields that I was interested in.

I was able to speak with people who work within the program and people who actually went through the program I would apply for, which made me very interested. Also, I enjoyed Knoxville as a city that I could see myself living in.

Yes. I am very interested in UTK for grad school.

UT was not previously on my radar.

10 out of 11 participants who said the URC did not influence the likelihood of applying for graduate school indicated they were already applying or planning to apply to graduate school – the other comment provided was, “It didn’t.

2 out of 12 open-ended comments from participants who said the URC did not increase their likelihood to consider UT, indicated they already intended to apply to the University of Tennessee for graduate school.

“I never had Tennessee as an option and maybe it would have been nice to been at the University or have some sort of tour/panel about the school itself.

Don't have a degree program that interests me.

Responses and open-ended feedback to whether the URC increased the likelihood of undergraduate participants applying to **graduate school** and considering the **University of Tennessee** as a graduate school option, continued

 I really understood how much I love research being around many students who love research  
It gave me more ideas and interest to pursue research.

I was influence as to a masters or a PHD

I am very likely to attend graduate school after attending the conference.

I have interested in graduate school originally, I just did not know my path yet.

I hope to apply to UT Knox.

It motivates me to apply for graduate school.

It was fun presenting work on an area that me and my friend and co-presenter were sole experts on. I like that ownership aspect of research and learning more, thinking independently, and contributing

The conference gave me a better idea of what graduate school is like at different institutions, which helped me decide where I wanted to apply.

 The professors gave me useful criticism on my research.

Yes– the University of Tennessee has great opportunities for math-bio related fields

I am considering to apply to UTK now, since it has epidemiology.

Pam is an amazing coordinator! Got much helpful information from her.

They have a masters in structural biology with concentration in bioinformatics

I have information and talk to one of the professor there

I mentioned I wanted to take a gap year, so I looked at master's programs and internships that were available.

The university was very nice! I will certainly consider it as an option.

 I am looking to be somewhere in the midwest to be near my family, and so I am not considering UofTK

I felt like I didn't necessarily get the chance to actually see campus

Their research (ecology and infectious diseases) didn't interest me (my research is in more of biological functions at the cellular level).

I'm not interested in living in Tennessee

I would like to attend a coastal school mainly because they provide a stronger marine biology program than a school inland. However, I found that UT is beautiful and definitely would consider it as an option.

It didn't.

My program is not offered.

I already know where I'm going to grad school

Qualitative feedback for, “What would you change about the conference?”, by undergraduates and non-undergraduates

Maybe allow some time for students to explore the city.

I would like the conference to take place from Thursday to Saturday instead that from Friday to Sunday because Sunday is usually a day I attend church and spend with my family.

More flexible schedule where gives us more time to hang out with each other.

The visiting colleges even if you do not get representatives many times you can get materials to help at least show the possibilities of certain colleges.

Have more school representatives

Try to bring more graduate schools to the graduate school fair portion.

Start sooner on Saturday. End sooner on Sunday

I think that the communication between undergraduates was a bit difficult at times even with the icebreaker. It felt like the people were not as interested in the research aspect of it as I was and didn't really want to discuss their research as much as I was expecting. I think I would change the way the icebreaker was performed and try a new game that involved more an entirety of a group rather than smaller groups.

I was slightly upset we did not get to sit down for breakfast on Sunday just because breakfast is a meal and not a snack and eating it was difficult standing up.

I would try to make it longer. I would have loved to have been able to spend more time in Knoxville and possibly visit the university via bus or whatever. Otherwise, I loved the flow of presentations and location made it extremely helpful easy to get to the conference.

I felt like the grad school fair wasn't very big. I wish there were more school with more programs

Not have a poster session at night.

The presentation time

Increase knowledge of the conference to more students interested in working at the interface of Biology and Mathematics. Add more diversity to discussion panels.

It would be very nice if more UT faculty attended. This would shine a brighter light on the fantastic activities going on at UT in Math Biology and would be good PR for NIMBioS.

I would invite additional mathematical biology faculty from R1 institutions, advertising it to them as a chance to recruit outstanding potential graduate students. Many faculty were from primarily undergraduate institutions, which is wonderful for those faculty and I'm not suggesting to reduce recruitment from PUIs, but I feel that inviting additional R1 faculty could really benefit the undergraduate students by helping them connect to potential advisors, as many of the students plan to pursue graduate studies.

Qualitative feedback for, “What would you change about the conference?”, by undergraduates and non-undergraduates, continued

“The quality of the talks were extremely poor. The selection committee should be much more selective with the talks, because unlike the poster presentations, attendees cannot walk to and from as they please. There were quite a few posters that were impressive and should have replaced the talks.

Maybe make it a little longer. It felt rushed at times.

Graduate school showcase did not need to be an hour long when there was only like four schools being represented

I found the panel discussion not very useful and I think I would've been more inclined to mingle with people if not for the set game, because I prefer to interact naturally rather than through activities like that.

Allow the talks to be 20 minutes. 15 minutes is too short and results in students either going over, or skimming too many details that could be covered in 5 more minutes. Also to have more than 5 minutes between sessions. This is too tight of a schedule. Even 10 minutes would be better, though 15 would be preferred.

I don't think there was enough diversity in college majors.

The hotel check-in. When I arrived around 9AM, the room that was booked for me was not ready and I had to leave my belongings in another interns room and also get ready for the conference.

Include a talk that has a less serious aspect to it (like the zombie modelling talk last year)

I thought overall the conference was well run, perhaps slightly more time to get to know other people at the conference separate from dinner time.

Would like to hear more about current research projects at NIMBioS

Snacks during the break before dinner

I would have more food.

Better food

Nothing. I thought it was great

I think the conference was very good overall.

“A different networking activity.

More speakers on career opportunities with mathematical biology.

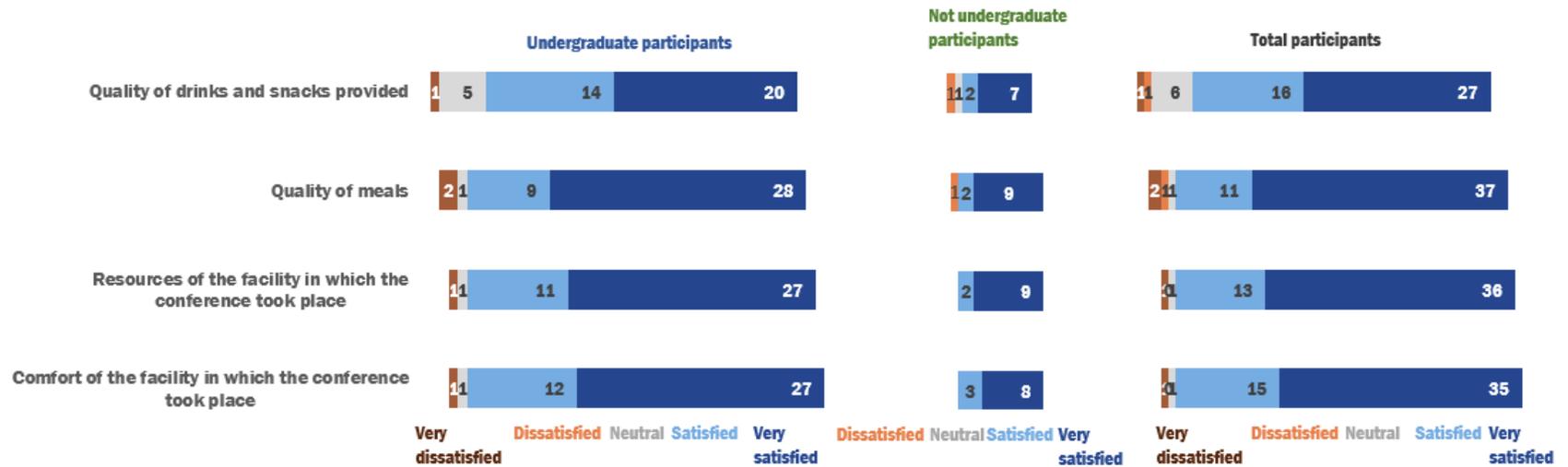
Nothing substantial comes to mind - maybe the meeting room as it's layout made it difficult for those in the back to see well. The overhead projector screen was not high enough on the wall relative to how far back the row of chairs went.

It might also work well to schedule the poster session and table session so that they aren't back to back—these sessions provide a chance to walk around and could be a nice break in between oral sessions.

I would attempt to increase the level of schools participating in the graduate school fair.

The coming together of undergraduate students doing great work.

Satisfaction with conference accommodations by **undergraduates** and **non-undergraduates** with feedback for how NIMBioS can improve the resources and/or accommodations



Snacks provided were slightly lacking in time of availability and variety

Great accommodations!

The connection activity was confusing

Just fruit and biscuits is not breakfast.

Better continental breakfast! I suggest croissants, juice, and scrambled eggs.

More dietary options for people with allergies (I have severe allergies to gluten, dairy, tree nuts, and peanuts).

Large waste of iced tea and water. In the future, don't have them ready-poured.

I felt I accommodated very well and think that everything ran quite smoothly.

All quite good.



The initial information was distributed a little slow. If this could be improved, this would be great.

Qualitative feedback and comments about participant overall experience by **undergraduates** and **non-undergraduates** responses, continued

“Thank you so much for giving me this opportunity. I had a phenomenal time and I learned a lot and I thought a lot.

Overall, it was a great experience and I really appreciate being able to present and being welcomed in such a great experience.

I enjoyed every bit of the conference! Changing the days to Thursday-Saturday would be best so I can get back home by Sunday and go to church, be with my family, and do my homework.

I enjoyed very much my first conference experience with NIMBioS. I got a lot of positive influences on my personal career plans and also my passion about doing research in math and biology.

It was an amazing experience, opened my eyes to a lot of the programs available at UTK. Met some undergrads that I shared my contact information and we will keep in touch. I had a lot of fun and learned so much.

I think this conference is a great platform to bring math and biology together, but I would have liked to have seen more diversity in the mathematical tools used. I also would have liked more detailed insight in the field and not just surface conversations about the interface.

It was great. Would highly recommend.

Overall, my experience was incredible and I am so grateful to have been able to fly to UT in order to present research that my team and I have been working on for months. I find research so fascinating and really loved that I got to participate in something like this.

Overall, the conference was a really great experience and a great place to present for the first time.

This conference was a great experience for me and my peers. I absolutely enjoyed the experience gained through attending.

Truly a remarkable experience. Thank you

“It was very good.

The conference organizers really succeeded (again!) in creating a welcoming, supportive, and exciting environment for undergraduates to gain valuable experience and to have good networking opportunities. It was a delight to see so many students excited about what they did and eager to learn from others.

Overall the conference went well and I would bring students back next year.

The meeting has never failed to meet my expectations as I attend from year to year. And this year had been particularly rewarding because the students I came with appreciated the opportunity to share their work and mingle with other students doing great research. It is my hope that this meeting will lead to future collaboration.

Very positive overall—thank you for hosting it!

Qualitative feedback and comments about participant overall experience by **undergraduates** and **non-undergraduates** responses, continued

“ Thought the experience was great and wish I would have went more than just once  
I had a great time overall!  
I liked it  
I enjoyed it  
It went well.  
Enjoyed it greatly  
It was great! Thank you for having us! :)

“ Very full-filling. Thank you for invited me as speaker  
The conference was an excellent experience for my group and we are already planning to return again next year.