THRIVING

The iTHRIV Newsletter

August 2024

Contents

CUBE: Leading the Way in Collaborative Biostatistics

Dr. Alexandra Hanlon, iTHRIV Research Methods Core Co-Director at Virginia Tech (VT), is the Principal Investigator on a $1.25 million grant from the National Institutes of Health (National Institute on Drug Abuse [NIDA] and the National Institute on Alcohol Abuse and Alcoholism [NIAAA]) to lead the Collaborative Undergraduate Biostatistics Experience (CUBE). CUBE is an eight-week summer program designed for underrepresented undergraduate students in STEM to diversify and bring awareness to the profession of collaborative biostatistics. This summer, Dr. Hanlon and her team, along with Dr. Sarah Ratcliffe's team from the University of Virginia (UVA), hosted their first full cohort of students.

Mission and Evolution of CUBE

CUBE's mission is to highlight the important role of collaborative biostatisticians in translational science and to diversify the profession. Dr. Hanlon aims to inspire and equip the next generation of biostatisticians, emphasizing that diversity within the profession broadens perspectives, enhances problem-solving abilities, and fosters innovation in health sciences.

Since its inception in 2021 with a single student at Virginia Tech, CUBE has grown significantly. By 2022, the program expanded to four students, with two each at VT in Roanoke and UVA in Charlottesville. Based on participant feedback, the program was refined for 2023, hosting five students across both sites under a new NIH award and iTHRIV funding. This summer, seven students were hosted at VT under the NIH R25, with two additional students at UVA supported by the R25 and UVA's

Division of Biostatistics. Students at both sites received the same technical training and professional development series and had the opportunity to apply their knowledge to collaborative research projects with mentors from Virginia Tech.

Diverse and Talented Cohort

This year's students represented Duke, Florida State, Juniata College, St. Olaf College, Virginia Tech, Wake Forest, and Washington and Lee University. The cohort was notably diverse, including students from various racial and ethnic backgrounds, disadvantaged backgrounds, neurodiverse individuals, and a significant proportion identifying as LGBTQIA+.

Additionally, this year's cohort included students who are first-generation U.S.-born and first-generation college students.
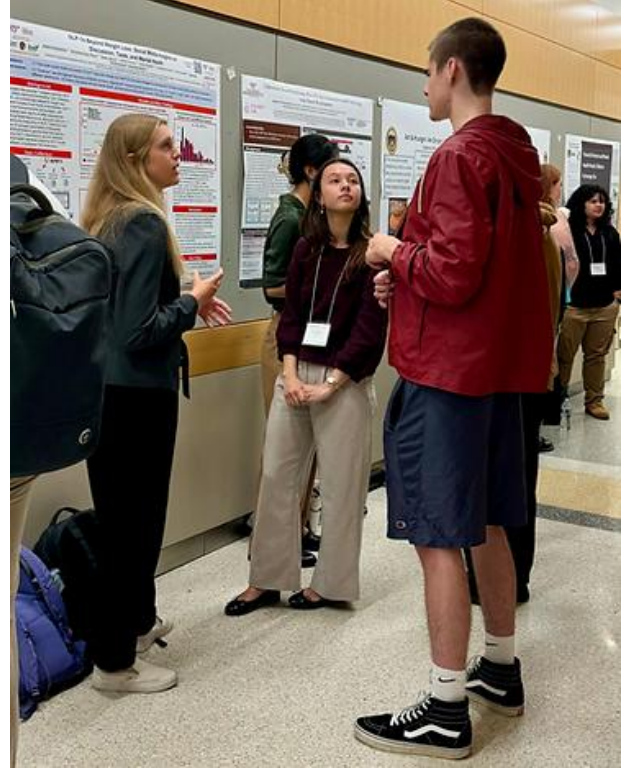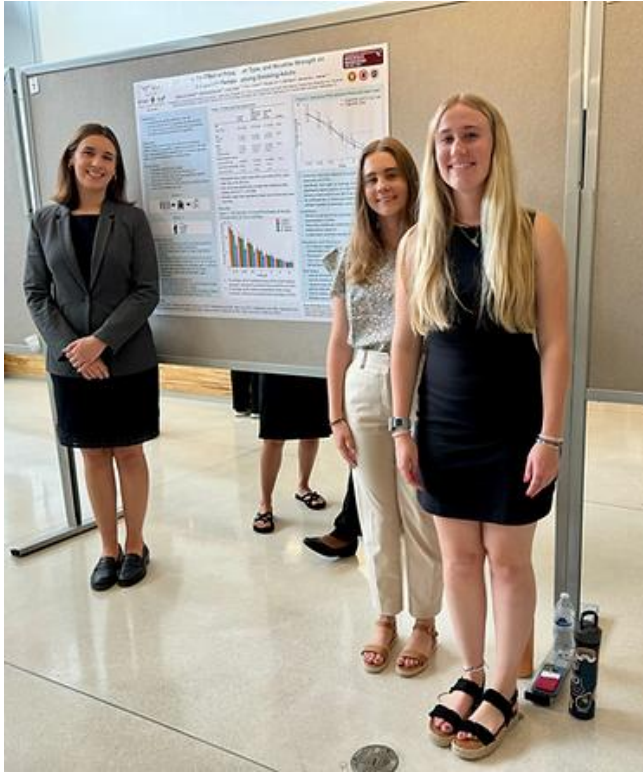
Collaborative Research Projects and Mentorship

 Students formed three teams to work on collaborative projects, culminating in oral presentations and participation in poster symposiums at Virginia Tech in Blacksburg and the Fralin Biomedical Research Institute (FBRI) in Roanoke. The success of the CUBE program is attributed to dedicated mentorship from both content and biostatistics experts. At Virginia Tech, biostatistics mentors included Alex Hanlon, Alicia Lozano, Monica Ahrens, Tanner Barbour, Alex Goebel, Chris Grubb, Muyao (Jenny) Lin, and Emmanuel Nartey. Content mentors included Drs. Brooks Casas, Pearl Chiu, Alex DiFeliceantonio (2020-2022 iTHRIV Scholar alum), and Jeff Stein. At UVA, biostatistics mentors included Dr. Sarah Ratcliffe, Ms. Genevieve Lyons, and Dr. Marieke Jones.

Three student teams tackled innovative projects:

- Jackie Gregasavitch, Genevieve Jean-Pierre, and Sarah Lathrop worked with Dr. Alex DiFeliceantonio on a project using Reddit data to examine GLP-1 agonists, taste changes, and mental health mentions. This project won first place at the FBRI's 5th Annual Summer Research Symposium for visual elements and knowledge acquisition, and second place for oral presentation of their research posters.

- Genevieve Brunner, Maggie Brooks, and Julia Neres collaborated with Dr. Jeff Stein to study the effects of price, user type, and nicotine strength on e-cigarette demand. This project, along with the GLP-1 project, will be submitted for peer-reviewed publication.

- Chloe Burt, Miriam Sack, and Grayson Weavil worked with Drs. Brooks Casas and Pearl Chiu to examine the mediating and moderating role of trust on the relationship between social isolation and mental health outcomes. Results from this work will support an upcoming NIH R01 grant submission due in August.

Student Experiences and Program Impact

Students expressed their appreciation for the professional development sessions and hands-on collaborative research experience. Julia Neres highlighted the value of working with graduate student mentors and investigators on real-world projects, as well as observing professional biostatisticians at work, stating, "CUBE gave me a lot of insight into what I would be learning in graduate school and how academia works. Working on the research project gave me a sense of confidence in applying the methods and tools we learned. As a field, I now understand how the research process works, which was completely new to me; so even if I end up doing something outside of biostatistics, like applied public policy, now I have a grasp on where the research came from, and why it is rigorous or perhaps not."

Evaluation metrics collected at pre- and post-program demonstrated significant improvements in students' research knowledge and experience, understanding of graduate school processes, and career opportunities in biostatistics. Students reported increased confidence and readiness for future research endeavors, emphasizing the program's positive impact on their academic and professional trajectories. Previous CUBE alumni have gone on to prestigious graduate programs in biostatistics, business analytics, public health, and data science, showcasing the program's effectiveness in preparing students for advanced studies and careers in STEM fields.

Looking Forward

Reflecting on CUBE Summer 2024, the program's mission to diversify and bring awareness to collaborative biostatistics is clearly succeeding. The program's growth aligns with the rising importance of biostatistics in translational science and public health, and the value of diverse

perspectives in research. The achievements of CUBE students in innovative projects, competitions, and future endeavors highlight the impact of opportunities and mentorship in STEM. Moving forward, CUBE is committed to fostering an inclusive environment that educates and empowers the next generation of biostatisticians. Together, we are building a more equitable and effective scientific community, ready to tackle pressing health challenges with creativity, expertise, and a commitment to health equity.


The CUBE program is generously supported by a host of funding partners, including the NIH R25 award (R25DA058482), AbbVie, UVA's Department of Public Health Sciences, and VT's College of Science and Department of Statistics. The NIH R25 award at VT will support 8-10 students per year over the next four years, with near-term plans to seek additional funding to expand the program at UVA.

ClinicalTrials.gov Updates
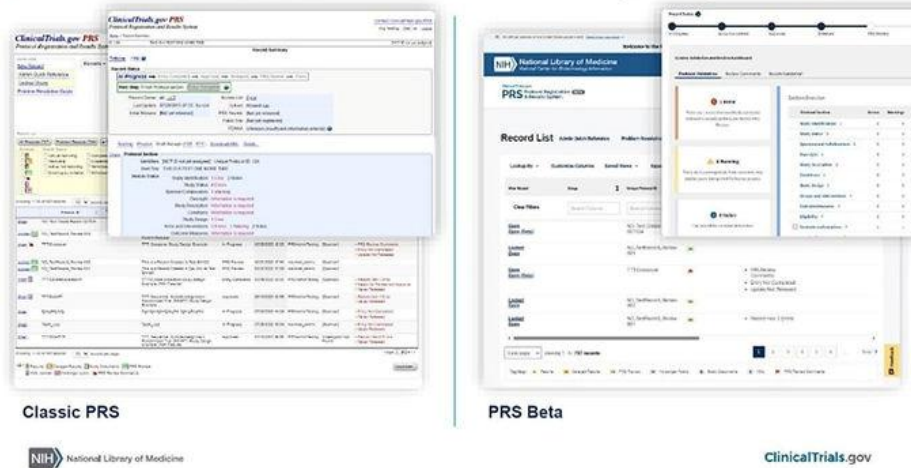
PRS Beta (Modern view) will become the primary website for Protocol Registration on ClinicalTrials.gov on August 28, 2024.

What does this mean?

Effective August 28, when you log in to ClinicalTrials.gov, the appearance of your record list will change.

- When you first log in, you will see the Record List of the modernized PRS
- You will be able to submit protocol registrations using the modernized PRS, but will need to return to the classic PRS to complete results submissions and to use other features
- Study records with results, delayed results, and study documents will open only in the classic PRS

PLEASE NOTE: New registrations must be initiated in the Modern View effective 8/28/2024.

It is advised you start familiarizing yourself with the beta version now to minimize surprises as new record functions are turned on.

For more information on PRS transition, visit the Modernization Transition Top Questions : https://clinicaltrials.gov/about-site/modernization-top-questions#versions

For questions, please contact your institutional PRS Administrator:

- UVA – Jodi Darring, jgd7s@uvahealth.org
- Virginia Tech – Sarah Henderson, sehenderson@vt.edu
- Carilion Clinic - Kristina Cooper, kecooper1@carilionclinic.org

iTHRIV Under the Microscope

Johanna is iTHRIV's Director of Informatics and also leads the National COVID Cohort Collaborative (N3C) Logic Liaison team. With a bachelors in Symbolic Systems from Stanford University and a master's in Systems Engineering from the University of Virginia she is passionate about designing, integrating, and managing complex systems that support translational health research. Johanna previously worked as the Director of Neurosurgery and Neuro-oncology clinical research, managing dozens of drug and device trials as well as outcomes research. Her years of bedside research experience richly inform her understanding of translational research procedures, patient care workflows, and Real-World Data (RWD) as represented in electronic health record systems.

Now, as the Director of Informatics for iTHRIV, she oversees the development of a variety of processes and systems that accelerate translational data science. She is the Product Owner for the iTHRIV Portal and Research Data Commons. She designed the "Logic Liaison" data pipelines

Johanna Loomba, ME
iTHRIV Director of Informatics

that facilitate data integration and feature extraction, helping researchers transform complex source data into machine learning ready dataframes. She also trains researchers in the use of health informatics tools including open-source tools created by groups like OHDSI as well as industry software such as TriNetX. Johanna has served as an informatician and co-author on over 50 manuscripts while working at iTHRIV. She also enjoys teaching health informatics to iTHRIV interns and to early career professionals as an instructor for the AIM AHEAD "Traineeship in Advanced Data Analysis Using NCATS Data and the N3C Enclave".

Johanna's personal interests are as varied as her professional work. She dabbles in creative fun like making music with friends, gardening, painting, weaving, and potting. She also loves to hunt mushrooms in the woods and ferment wild harvested foods. She is grateful to have many members of her extended family nearby, including a daughter who is a senior at VCU.

Meet a Mentor: Catherine P. Bradshaw, Ph.D., M.Ed.

Catherine P. Bradshaw, Ph.D., M.Ed.

University of Virginia

University Professor & Senior Associate Dean for Research

School of Education and Human Development

Faculty Advisor, Office of the Vice President for Research

"Dr. Bradshaw has been a mentor, connector, and friend. She is always happy to share her deep knowledge of the grant writing process with me and to connect me with other leaders in our field. I also appreciate how she always shares resources and opportunities. I am grateful to have her on my mentoring team."

Lora Henderson Smith, PhD
Assistant Professor
UVA School of Education and Human Development