

High-quality undergraduate research (UR) mentoring is beneficial for both students and faculty/staff members (Hall et al., 2020; Shanahan et al., 2015). An extensive literature review has identified ten salient practices of faculty mentors as being significant for effective UR that apply broadly across disciplines, types of students, types of institutions, and mentoring approaches (Shanahan et al., 2015).

The ten salient practices of effective UR mentors include doing strategic pre-planning, setting clear and well-scaffolded expectations, teaching technical skills, balancing rigorous expectations with emotional support, building community, dedicating time for one-on-one hands-on mentoring, increasing student ownership, and supporting students' professional development through networking and by explaining norms of the discipline, among others (Shanahan et al., 2015).

Current events, however, have highlighted the fact that life –in general– and conducting high-quality UR –in particular– are full of unexpected ebbs and flows, especially with the multiple uncertainties that become exacerbated by circumstances such as the COVID-19 pandemic, political turmoil and unrest, social and racial injustices, natural disasters, and climate crises affecting populations globally. The current issue of *Perspectives in Undergraduate Research Mentoring* (PURM) focuses on how faculty mentors have supported UR during such times of uncertainty and global crises. It provides a collection of “best lessons learned” on how mentors and mentees can work collaboratively, create adaptive mentoring relationships, continue to build resilience and community, center the students' mental health and wellbeing, and even thrive during unprecedented disruption, while working in-person or remotely. By doing so, it showcases how unique challenges in the face of uncertainty and the unknown can bring an opportunity for learning from various UR mentoring models and from the mentoring relationships that form among students and their mentors.

In the current issue of PURM, the Guest Editors aimed to solicit manuscripts that embraced the breadth of mentoring undergraduate research during times of uncertainty. The six papers published under this special theme cover topics ranging from a case study that shines a light into how an analytical chemistry research group responded to the shifts in structuring the undergraduate research experience necessitated by the COVID-19 shutdown to research articles discussing evidenced-based frameworks that mentors of undergraduate students can keep in mind to center the wellbeing of their students. In addition, there are multiple dialogues that detail the adjustments made in mentoring undergraduate students as a result of the global challenges with projects that range from community-engaged research to an interdisciplinary STEM collaborative grant.

Throughout the editing process, we noted particularly salient areas for future research on mentoring undergraduate student researchers in the face of uncertainty. First, what makes UR mentoring, or

mentoring constellations, most adaptive or high-quality during times of stress? How do mentors' or mentoring constellations' varied identity-related characteristics, experience levels, or cross-disciplinary infrastructures support UR within or across specific contexts? Are certain aspects of high-quality, adaptive mentoring more necessary in different contexts, especially if some disciplines are more affected by uncertainty?

Second, how can we expand our knowledge and application of adaptive UR mentoring or mentoring constellations – to include more diverse student voices in this literature, to increase adaptive mentoring training capacity among faculty and staff mentors, or to expand this work to different types of disciplines, institutions, or contexts? Much prior research has been conducted on scaling UR mentoring efforts *out*, with a goal to train or teach high-quality mentoring practices for application to a broader number of contexts and to a greater number of students. However, in times of marked political, cultural, or social stress, this focus on reproduction and expansion may not be an achievable goal. Instead, differing innovative solutions may be used to address challenges or systemic problems. Some institutions have instead focused their efforts on scaling *up* mentoring initiatives, which center on goals to impact regulations or policies related to mentoring within an institution, such as redirecting institutional resources to support adaptive forms of mentoring (Riddell & Moore, 2015). This can be helpful in incentivizing adaptive mentoring or providing structured professional development opportunities. Even still however, implementing adaptive mentoring may still present challenges during challenging times. Strategies for scaling *deep* may be an answer in this case, as those strategies impact the mindsets, norms, beliefs, and cultural roots of mentoring relationships, by recognizing that changes within mentoring or mentoring constellations must be deeply rooted in the people who make up groups or communities of practice across campus (Riddell & Moore, 2015). More research is needed on strategies to scale adaptive mentoring out, up, and deep.

As we conclude, we thank our esteemed colleagues who served as peer reviewers for this themed issue of PURM. We also thank Dr. Qian Xu for her leadership and guidance throughout the development and editorial process of this special issue. And finally, we thank the contributing authors for their thought-provoking and important scholarship.

Sincerely,

Mussa Idris, Ph.D.
Associate Professor of Anthropology, Elon University

Takudzwa Madzima, Ph.D.
Associate Professor of Exercise Science and Chair of the Department of Exercise Science, Elon University

Sabrina L. Thurman, Ph.D.
Assistant Professor of Psychology, Elon University

References

Hall, E. E., Bailey, E., Higgins, S., Madzima, T., Nepocatych, S., Wittstein, M. W., & Ketcham, C. J. (2020, July 17). Lessons learned from mentoring undergraduate research this summer: Salient practices of undergraduate research mentoring. *Center for Engaged Learning*.
<https://www.centerforengagedlearning.org/lessons-learned-from-mentoring-undergraduate-research-this-summer>

Riddell, D., & Moore, M.-L. (2015). *Scaling out, scaling up, scaling deep: Advancing systemic social innovation and the learning processes to support it*. The J. W. McConnell Family Foundation. https://mcconnellfoundation.ca/wp-content/uploads/2017/08/ScalingOut_Nov27A_AV_BrandedBleed.pdf

Shanahan, J. O., Ackley-Holbrook, E., Hall, E., Stewart, K., & Walkington, H. (2015). Ten salient practices of undergraduate research mentors: A review of the literature. *Mentoring & Tutoring: Partnership in Learning*, 23(5), 359-376. <https://doi.org/10.1080/13611267.2015.1126162>

About Guest Editors

Dr. Mussa Idris is an Associate Professor of Anthropology at Elon University. He is a cultural, economic, and applied anthropologist. He studies immigrant entrepreneurship and refugees' integration in North Carolina and in Washington D.C. He has mentored more than a dozen undergraduate students at Elon in their research projects and has received college and university wide awards for excellence in mentoring. His recent publications include co-authored articles, both with faculty colleagues and a mentee, on high-quality undergraduate mentoring practices.

Dr. Takudzwa Madzima is an Associate Professor and Chair of Exercise Science at Elon University. He routinely mentors undergraduate research, has collaborated on multiple diversity and inclusion grant projects to support curricular and co-curricular innovations, and was recognized with the Elon College, the College of Arts & Sciences, Excellence in Teaching award in 2021. His disciplinary research involves investigating the efficacy of exercise and dietary interventions to counteract the physical and psychosocial adverse effects of both cancer and cancer therapies.

Dr. Sabrina L. Thurman is an Assistant Professor of Psychology at Elon University. As a developmental psychologist, she studies how developmental histories and contextual influences shape the acquisition and application of novel skills, including infant motor abilities and learning occurring in adult mentoring relationships. She actively mentors undergraduate researchers and recently co-designed a peer mentoring program to support first-generation college students at Elon University. She has several publications and presentations on mentoring in higher education.