

# Introduction

Patricia Ann Mabrouk, guest editor,  
Undergraduate Research during Times of Disruption theme

## Nontraditional Approaches to Undergraduate Research

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This issue of SPUR features nontraditional approaches to undergraduate research, highlighting the remarkable versatility of the phenomenon of undergraduate research. Employing a variety of different models, modalities, and scales, these articles and vignettes showcase both in-person and virtual work by faculty-student teams in a wide array of academic disciplines at an equally diverse array of academic institutions. If there is one theme that runs through all the contributions to this issue, it is the remarkable creativity, ingenuity, and resourcefulness of undergraduate research mentors. Those new to undergraduate research as well as longtime partners with undergraduates will find something of value here.

The issue opens with two practice articles that outline useful models for managing complex undergraduate research teams. Isabelle Sperano and colleagues (MacEwan University) report on a three-year research project involving faculty and students from four disciplines. The group developed and deployed the video game *Life on the Edge* that teaches second-year biology majors about the structure and function of different cellular components. The authors offer advice to other faculty interested in interdisciplinary research on navigating the complex and time-consuming challenges of a team project using management strategies, including a project charter, timelines, team meetings, and active faculty mentoring and supervision. Crissa Levin and Jennifer Grewe (Utah State University) review the literature on distance learning and offer a useful framework for faculty seeking to run successful undergraduate research groups online. They illustrate the three guiding principles in a model using examples from the *Factotum Lab* (Latin for “do everything”), which teaches research skills to undergraduate psychology students earning their degrees remotely.

The next three articles (two practice and one assessment) describe innovative approaches to using academic courses as vehicles for undergraduate research. These course-based undergraduate research experiences (CUREs) hold tremendous promise for providing more postsecondary students in a broader array of disciplines with access to high-quality research experiences (Hensel 2018). Most CUREs focus on educational experiences at academic institutions. Willa Zhen (Culinary Institute of America) describes a truly unique CURE that introduces vocationally focused culinary

students to research in a senior capstone focusing on Japanese cuisine and blending intellectual and experiential engagement in research in a truly inventive way. Joshua R. McConnell Parsons and colleagues at the University of Kentucky report on their creative, collaborative CURE embedded into a first-year writing course that fulfills the university’s general education requirement. Students work collaboratively with research staff in the Louie B. Nunn Center for Oral History to develop multimodal digital stories based on unpublished oral histories. This truly innovative model has the potential to promote access and equity to a wide swath of college students in meaningful research experiences at a critical time in their academic careers. As such, it has the potential as a model for widespread adaptation across higher education. This cluster of CUREs closes with an assessment piece by Joseph L. Allen and colleagues (Concord University, Virginia Tech). This team outlines a unique CURE in geology embedded across five courses during two years of coursework at a rural, primarily undergraduate institution in Appalachia. The approach promotes different developmental benefits, as compared to those previously reported for traditional undergraduate research experiences, including enthusiasm for fieldwork, data collection, and the use of advanced laboratory techniques.

All seven vignettes in this issue present creative approaches to significant challenges in undergraduate research: the issue of mentoring, student-led efforts tapping student creativity, and productive engagement of students on sensitive topics, and several vignettes re-envisioning undergraduate research in the face of major disruption. This section opens with a contribution by Heidi S. Temples and colleagues at Clemson University, who describe a credit-bearing team-based undergraduate research experience developed for pre-health students focused on culturally sensitive, community-based research. Faculty and students leveraged qualitative storytelling to probe the challenging experiences of mothers addicted to opioids during and following pregnancy. This project has resulted in many research products, including oral and poster conference presentations, a book, and three scholarly manuscripts under review. Lorraine S. Wallace and colleagues describe an effort by the Office of Undergraduate Research & Creative Inquiry at The Ohio State University to establish the interdisciplinary Images of Research + Arts Competition in which students submit one image capturing their research or artistic endeavors. The annual event has attracted students from a wide array of academic disciplines often underrepresented in the university’s annual undergraduate research forum. Mark Lubkowitz and Cierra Pierce (Saint

Michael's College) and Tabitha Finch (Vermont Biomedical Research Network) outline a creative, collaborative approach to the challenge of providing quality mentoring in CUREs, leveraging former students as "near-peer" mentors. Danielle Johannesen (University of Minnesota Crookston) shares a student-initiated project that grew out of a Writing in Your Profession course in which students successfully developed the sports-themed podcast "Calling an Audible" that has become an ongoing audio project, enjoyed not just in the campus community but across the United States and other countries as well. History undergraduate Henry Jacob (Yale University) reports on a collaborative effort that brings together editors from 20 undergraduate journals into a consortium of undergraduate publications "based on egalitarian principles." The Society for Undergraduate Humanities Publications held its first conference in 2019 and had scheduled its second annual meeting on Zoom for early 2021.

The final vignettes are contributions to SPUR's ongoing theme on Undergraduate Research during Times of Disruption. Jonathan Briganti and Anne M. Brown (Virginia Tech) share three successful strategies in their transition of a 30-person computational research team of faculty, managers, graduate students, and undergraduates to remote work during the COVID-19 pandemic. Toni Barstis (Saint Mary's College) shares her re-envisioned nanomaterials laboratory experiment that provided her students with experience in writing grant applications, developing and delivering funding pitches, and engaging in peer review.

Enjoy the many thought-provoking offerings in this issue.

### Reference

Hensel, Nancy H. (Ed.). 2018. *Course-Based Undergraduate Research: Educational Equity and High-Impact Practice*. Sterling, VA: Stylus.

## SPUR Best Article Honorees (Volume 3)

Congratulations to the honorees in the inaugural SPUR Best Article Awards (volume 3).

### Best Article

"Toward Greater Reproducibility of Undergraduate Behavioral Science Research"

Bruce Evan Blaine  
St. John Fisher College  
SPUR, vol 3., no. 1, fall 2019 • doi: 10.18833/spur/3/1/2

### Honorable Mentions

"Preservice Teachers on Their Way to Becoming Reflective Practitioners:  
The Relevance of Freedom of Choice in Research-Based Learning"

Franziska Nikolov, Constanze Saunders, and Heidi Schaumburg  
Humboldt-Universität zu Berlin/Friedrich-Schiller-Universität Jena  
SPUR, vol. 3, no. 4, summer 2020 • doi: 10.18833/spur/3/4/6

"Reflections on the Evolution of Undergraduate Research at Primarily Undergraduate Institutions Over the Past 25 Years"

Mitchell R. Malachowski  
University of San Diego  
SPUR, vol. 3, no. 2, winter 2019 • doi: 10.18833/spur/3/2/5

In making its decision, the SPUR Best Article subcommittee of the *Scholarship and Practice of Undergraduate Research* Editorial Board considered excellence with respect to the journal's evaluation criteria, specifically "manuscripts that describe novel programs that can serve as models for other institutions, those containing significant assessment of outcomes, and those articulating research on the efficacy of undergraduate research programs." It also weighed timeliness (addressing current issues in undergraduate research) and/or timelessness (demonstrating the potential of value over time), broad appeal in terms of generalizability to disciplines and types of institutions, and pedagogical value.