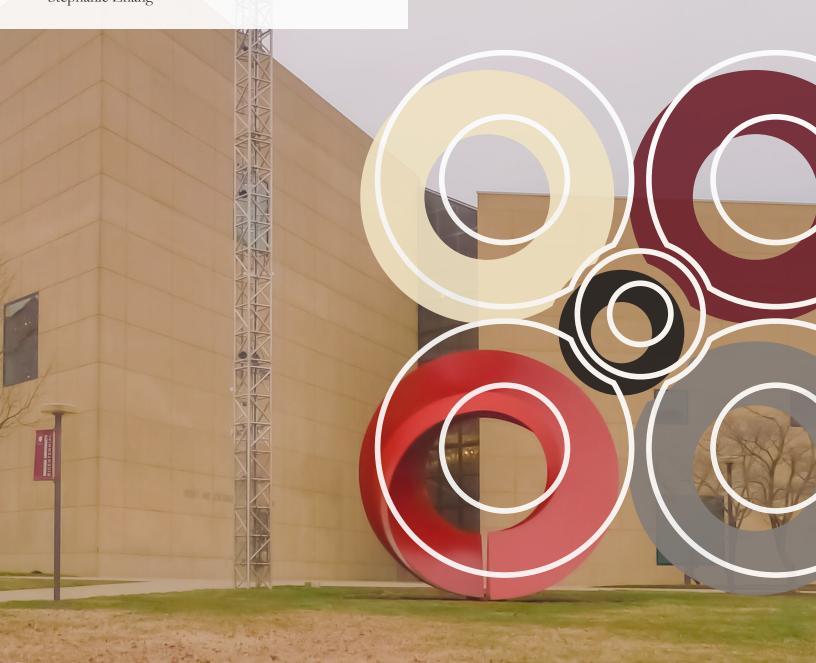
## Indiana University Journal of Undergraduate Research

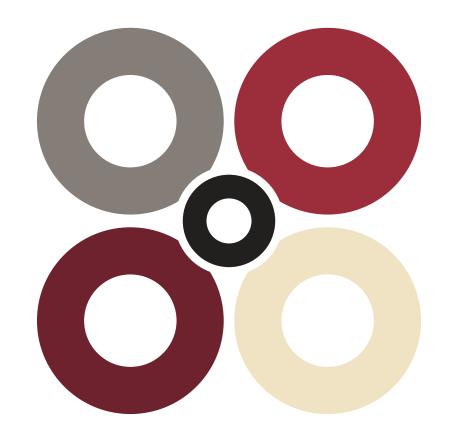
## Volume V 2019

Editors-in-Chief
Mac Vogelsang & Shahin Saberi
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# IUJUR

Indiana Univeristy Journal of Undergraduate Research



Volume V

2019

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## LETTER FROM THE EDITORS

## Dear Reader,

We are proud to present Volume V of the Indiana University Journal of Undergraduate Research (IUJUR). In it you will find a selection of work highlighting the creative and scientific diversity of undergraduate research at Indiana University, with topics ranging from songbird physiology to medieval chivalry. This volume recognizes the authors for their talent and persistence throughout our rigorous review cycle, and their faculty mentors who support and encourage this form of development outside the classroom. We hope that you find enjoyment and educational value from the pages within.

IUJUR is a student-run, faculty-advised organization, and for over six years, we have pursued the goal of making the research process more accessible and engaging for undergraduates. To do this, we publish this peer-reviewed, open-access journal for all to read, engage students in a editing cycle akin to that of professional journals, run an academic publishing class to train new student editors, and host professional development events throughout the year. We rely on the continued support of the Office of the Vice Provost for Undergraduate Education (OVPUE), IU Libraries, and our many faculty reviewers and advisors to realize our mission and become a reputable journal in the IU community.

The current volume represents a year of major changes, which reflect how both IUJUR and the undergraduate research community at IU has grown. We began to publish papers on a rolling basis, streamlined our marketing materials, better integrated our submission management platform into our staff's workflow, and hosted IU's first ever Research Day, a professional development conference for students interested in getting started with research or pursuing research careers after graduation. Our ongoing initiatives flourished as well. With the help of IU Libraries and OVPUE, we continued to run a successful academic publishing class for our student editors, and through our Online Creative Content team, we maintained a regular cadence of articles about issues and happenings in the research community at IU.

Our undergraduate staff had a significant role in each of these successes. The Student Editorial Boards have done an excellent job adapting to a year-round flow of submissions while perpetuating IUJUR's standards of quality. Our Public Relations Board worked tirelessly to promote our new events and the constant stream of published work. And, of course, our Visual Design and Publishing Board is responsible for the beautiful, pragmatic design of our journal—one rivaling that of much larger publishers. This journal reflects the cumulative efforts of our staff after a year of hard work, and their professionalism and dedication cannot be applied enough.

As a team, we hope to continue to put forth an excellent journal for the next five years. We are pleased to have new submissions coming in at a steady pace, and we are excited for what the next volume may bring. Thank you for your support of undergraduate research, Indiana University, and our journal. We hope that you enjoy this volume.

Sincerely,

Shahin Saberi and Mac Vogelsang Co-Editors-in-Chief

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