The Undergraduate Research Journal at the University of California, Riverside, recognizes the collaborative research efforts of students and faculty, showcasing their creative endeavors and accomplishments.

Here, we proudly publish the diverse array of ideas and innovations emanating from our talented and intellectually curious undergraduates. This publication illustrates how UCR’s academic culture nurtures such skills as effective communication, collaboration with peers and mentors, and the academic pursuit of new knowledge and understanding.

We recognize the value of hands-on learning and academic discovery in educating our students as we prepare them for successful careers and advanced degrees in a 21st century world. Never before has human innovation and the transmission of knowledge been rewarded so handsomely and relied upon so heavily by an increasingly interconnected world. In this context, fostering undergraduate research is a vital component of the academic enterprise, and I am exceedingly proud of the work published here.

Sincerely,

Timothy P. White, Chancellor

You hold in your hands the fifth annual UC Riverside Undergraduate Research Journal. It provides a selective, peer-reviewed venue featuring the very best faculty-mentored undergraduate research and scholarship on our campus. The peer-review process has been very ably led by our Student Editorial Board, with advice as needed from the Faculty Advisory Board.

I want to congratulate the young scholars whose work appears here in. The process of discovery can be filled with excitement but also riddled with frustration, as we search and stumble in the dark, trying to shed new light that enriches our understanding of social or natural phenomena, nourishes our emotions, or enlivens our souls. During this process, we travel a path that no one has been on before. The journal article is the culmination of that process – a formal presentation to our community of peers and mentors of what we found on that journey. Place this volume on your bookshelf. Pull it down occasionally from the shelf to re-read and to remind yourself of the journey you traveled. I wish you many more such journeys in the future.

With best regards,

David H. Fairris
Vice Provost for Undergraduate Education
Professor of Economics