Whether the area of study is art history, neuroscience, or environmental engineering, the opportunity to participate in undergraduate research opens new worlds for students at the University of California, Riverside. Students have the opportunity to unravel mysteries, explore new concepts, or advance and test their own hypotheses, while learning the rigor of the scientific method, the discipline of writing, and the creativity of experimental design.

In an increasingly interdisciplinary academy, research often occurs at the boundaries of disciplines. Through guided discovery, UCR students can push not only these boundaries, but also their own imaginations. In the process, they gain both knowledge and invaluable experience that will help them in their future endeavors.

The Undergraduate Research Journal chronicles the discoveries and observations of UCR students who have been inspired by the natural world, a mentor, or their own curiosity. I invite you to share their journeys as described in these pages and marvel, as I did, at the quality of the work they have achieved.

Sincerely,

Robert D. Grey
Acting Chancellor

You hold in your hands the second annual UC Riverside Undergraduate Research Journal. It provides a selective, peer-reviewed venue to feature the very best faculty-mentored undergraduate research and scholarship on our campus. We think the articles in this issue certainly meet that high standard, and provide a wonderful foundation for the future growth of the Journal in scope, visibility, and stature.

The peer-review process has been very ably led by our Student Editorial Board, with advice as needed from the Faculty Advisory Board. So, much like the research published here, we have established a culture in which the editorial activities of the Journal are managed by students in a faculty-mentored process.

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 on which no one has been 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 applaud you on your efforts and wish you many more such journeys in the future. You are truly the “best and brightest” at UCR.

With Best Regards,

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