



BOISE STATE UNIVERSITY

OFFICE OF THE PRESIDENT

MESSAGE FROM PRESIDENT BOB KUSTRA

It is with real pleasure that I write to introduce this ninth volume of the McNair Scholars Research Journal. The papers contained in this volume represent a remarkable breadth of scholarship that encompasses some of the best of what Boise State University has to offer. The Scholars, their faculty mentors, the staff of the McNair Program, and all of us at Boise State are very proud of this work.

Congratulations to all of the 2013 McNair Scholars for your achievements over the past year. In particular, I want to acknowledge the hard work and accomplishments of the senior Scholars whose research is represented in the papers in this publication. McNair scholars work with faculty mentors who are committed to the rigors of scholarship—a working relationship that both students and faculty describe as unique and beneficial. I also want to recognize and thank all of the faculty mentors who have worked with our McNair Scholars. It is your patience, guidance, and encouragement that facilitates the transformation of these students into scholars.

The Ronald E. McNair Post-Baccalaureate Achievement Program honors the memory and achievement of the late Dr. Ronald E. McNair, a physicist and NASA astronaut. Its goal is to encourage undergraduates from underrepresented backgrounds to emulate the academic and professional accomplishments of Dr. McNair by facilitating their pursuit of doctoral degrees and academic careers in teaching and research. The McNair Scholars Research Journal is evidence that the McNair Program provides a valuable opportunity for these students to explore research on significant issues. The McNair Program also provides students access to nation-wide conferences and graduate schools where they can present their original projects and meet doctoral faculty. Completing its tenth year on our campus, the program's formula for helping students gain access to graduate school programs has proven very successful for a vast majority of those who have participated since its inception.

The research presented here signals the arrival of a new group of rising scholars who will carry their talents, enthusiasm, and hard work ahead into graduate programs here and across the country. I hope that you will continue to aspire, achieve, and pursue your dreams.

Again, congratulations and best wishes.

Sincerely,

Bob Kustra

May 2013

We are delighted to present our ninth issue of the Boise State McNair Scholars Research Journal. First published in the McNair Program's second year at Boise State, this journal continues to demonstrate the excellent undergraduate research that can be conducted when students are provided meaningful support through collaborative efforts. The collective excellence of these projects is a testament to the hard work of our Scholars and the tremendous support of faculty mentors who supervised these projects over the last one to two years.

The McNair Scholars Research Journal is the culmination of the research component of the McNair Scholars Program. The primary goal of this component is to engage students in the research enterprise at the undergraduate level in order to develop the analytical and methodological skills, academic sophistication, and confidence that will make them successful students in graduate school. It also provides an opportunity for students to publish their research and gain an early understanding of the critical role that publishing will play in their academic careers.

Maintaining a high standard of excellence for themselves, this year's McNair Scholars developed this research proving that each is ready to engage in the demands of graduate school. Being especially proud to see how these students have grown as researchers, it is fitting that all these efforts culminate in their deserved recognition through this journal. Thank you for allowing us to be a part of that process and for participating with us.

We also extend our deepest gratitude to all the faculty mentors who have guided and supported Scholars throughout our ten years, allowing them to grow in very significant ways. You have been instrumental in providing a solid research foundation from which they can enter graduate school with confidence. A final thanks to Jon Schneider, who pleasingly took it upon himself to edit the journal again this year.



Gregory Martinez
Director



Helen Barnes
Program Coordinator