

[Print this Page for Your Records](#)[Close Window](#)**Control/Tracking Number:** 2017-J-2655-SfN**Activity:** Theme J Abstract**Current Date/Time:** 4/24/2018 4:33:29 PM**Integrating neuroscience into a new freshman research initiative at a regional comprehensive university: the Research Immersive Scholastic Experience in Biology program****AUTHOR BLOCK:** *R. E. COHEN¹, A. M. LAND¹, B. F. MARTENSEN², D. S. SHARLIN¹, B. A. SMITH¹;¹Biol. Sci., ²Minnesota State Univ. Mankato, Mankato, MN**Abstract:**

The Department of Biological Sciences at Minnesota State University, Mankato, a primarily undergraduate institution, is developing and implementing the “Research Immersive Scholastic Experience in Biology” (RISEbio) program. RISEbio is a National Science Foundation-funded scholarship and support program that is targeting incoming Biological Sciences freshmen with demonstrated financial need and academic potential. The overall goal of RISEbio is to increase student academic success through: (1) Increasing student social integration and support, (2) developing student technical and professional skills, and (3) implementing a freshman immersive research program. To form a social support network, scholars will be part of a RISEbio learning community. A unique, core component of RISEbio is to provide scholars with an authentic real-world research experience by modifying freshman research initiatives utilized by research-intensive universities to fit within the available infrastructure at Minnesota State University, Mankato. During a scholar’s first year, they exchange their Introductory Biology 1 lab for an applied course, Foundational Methods in Biology. In their second semester, scholars join a research stream in exchange for their Introductory Biology 2 lab. The stream research continues on to their third semester. One of two initial research streams is focused on neuroscience and is titled “Brain and Behavior.” Students in this stream examine the neural control of reproductive behavior by examining gene expression in the brain of the seasonally breeding green anole lizard (*Anolis carolinensis*). Students will extract RNA from the hypothalamus of breeding and non-breeding lizard brains, then design primers and use quantitative PCR in conjunction with bioinformatic analysis to identify genes that are differentially expressed in the brain between seasons. If differentially expressed genes are found, students will learn how to design and perform *in situ* hybridizations to examine the localization of these genes within the brain. Following the third semester, scholars enter the “next steps” stage which offers support to identify additional opportunities on and off campus,

including mentoring the next group of RISEbio Scholars or joining research labs to continue conducting undergraduate research. RISEbio will also provide a platform to test how this program translates to student persistence and academic success. To our knowledge, this is the first freshman research initiative developed at a regional comprehensive university.

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