SOIRE SUBMISSION TYPE..... Oral presentation (10 minutes; preferred), or else poster

TITLE ..... Biogeography of Nationally Competitive S.T.E.M. Talent: A Case Study

PRESENTER'S NAME ..... Alexander E. Olvido

PRESENTER'S ACADEMIC TITLE..... Associate Professor

PRESENTER'S COLLEGE ..... Science & Mathematics

PRESENTER'S DEPARTMENT..... Biology

PRESENTER'S PRIMARY CAMPUS ..... Oconee

KEYWORDS ..... Integrated Postsecondary Education Data Systems (IPEDS), National Center for Education Statistics (NCES), National Science Foundation Graduate Research Fellowship Program (NSF-GRFP), geographic information science (GIS) mapping, odds ratio (O.R.)

ABSTRACT (<400 words):

Given the persistent clustering of federal research and development (R&D) funds to select U.S. states, it is worth asking if production of competitive science, technology, engineering, and mathematics (S.T.E.M.) students would be similarly distributed? As the oldest and arguably most prestigious training program for young American scientists (Gonzalez, 2014), the U.S. National Science Foundation's Graduate Research Fellowship Program (NSF-GRFP) offers a rich database for tracking such important demographic patterns. Preliminary analysis of 2010-2012 NSF-GRFP awardees ("Fellows") and honorable mentions indicated little systematic bias by NSF in offering these prestigious awards. Among participating U.S. states and territories in the three years of NSF-GRFP competitions considered, however, only Texas seemed to have lost more NSF Fellows in biology-related fields than it could recruit. Across all other NSF-funded disciplines, Texas also showed higher-than-expected loss of Fellows, even though the state produced a plurality of Fellows from the U.S. Southern region. The immediate goal of this project, thus, is to visualize the geographic distribution of NSF Fellows earning their bachelor's degree from a Texas college or university and subsequently relocating to their preferred graduate institution. In the longer term, it is hoped that incorporation of demographic and socio-economic data (especially from social scientists experienced in data-mining) will reveal explanatory variables that can predict success of NSF Fellows and help guide American higher education policies.

BIOGRAPHY (<500 words):

Alex Olvido is a quantitative biologist who revels in finding meaningful patterns in large and complex data sets. Receiving undergraduate research honors upon graduating from the University of California at Irvine, Alex left "The Golden State" to pursue dissertation studies at the University of South Carolina at Columbia with guidance from the driven (but still affable) evolutionary ecologist, Timothy Mousseau. Several hard-won accolades (including an NSF Postdoctoral Research fellowship) allowed Alex to pursue quantitative behavioral genetics research at the University of Nebraska—Lincoln with the behavioral ecologist, William Wagner, Jr. (and card-carrying MENSA member) and, later, at Morehouse College with Lawrence Blumer, who among other

things introduced Alex to the data-rich world of educational psychology and practitioner research. But as valuable as supervised postdoctoral experiences may be, nothing truly steels a scientist's resolve to improve American higher education than working full-time in a college classroom. After brief teaching appointments at Virginia State University (Petersburg, VA) and Longwood University (Farmville, VA), Alex joined the faculty of Gainesville State College (GSC) in 2008. The rest—including the well-publicized consolidation of GSC and North Georgia College & State University in 2012—is history.

Currently, Alex (happily tenured) teaches introductory biology courses to science majors and non-majors, guides undergraduate research projects, and serves on various school committees and grant review panels (most recently in March of 2017 for the Ford Foundation Fellowship program). As part of his self-imposed training in writing pedagogy (including interpretation of writing rubrics), Alex also participates in Educational Testing Service's Advanced Placement (AP) Biology readings just about every June in Kansas City, Missouri. Beyond the workplace, Alex volunteers with Oconee County Mentoring Program, keeps his backyard hens clucking, and occasionally picks/strums a guitar. (Sleeping and bathing are entirely optional—hah!)