University of Georgia 2016-17 STEM Education Improvement Plan

Initiative Goals:

1. Increasing the number of K-12 students interested in STEM
2. Improving performance and retention in STEM core courses and majors
3. Increasing the number of qualified K-12 STEM teachers

Goals 1 and 3

The UGA College of Education will leverage a strong existing partnership with the Clarke County School District (CCSD) to create a mentoring network that will simultaneously address USG Goals 1 and 3. Utilizing the connections that are built within schools, across schools and within UGA, we aim to implement mentored professional learning. Integral players in this community include in-service teachers, UGA pre-service teachers, CCSD instructional coaches, UGA faculty, and graduate students. The Mentored Professional Learning Partnership will identify and target courses with percentages exceeding the state average in the "beginning" level of the End of Grade Milestone tests. A multi-faceted approach will be used to change these outcomes; motivated by feedback from teachers and administrators, professional development and curriculum refinement will be the major components. In the first year, content focus for the community will include sixth grade mathematics, high school algebra, seventh grade science and high school biology. Content focus for subsequent years will add math and science courses taken by middle and high school students. Additionally students will be tracked to see if they continue to success in subsequent math and science courses after participating in the restructure offerings.

Goal 2

Peer Assisted Learning is the approach proposed to meet USG Goal 2 of improving performance in undergraduate STEM core courses. The number of students challenged by core courses that serve as gatekeepers to STEM majors will be addressed in a large initiative across six core disciplines: chemistry, physics, biology, engineering, mathematics and computer science. Peer assisted learning generally describes a system in which undergraduate students who have successfully completed a gatekeeper course are provided training and then assist undergraduate students in the course. The proposed plan represents the opportunity to apply a well-established treatment, peer assisted learning, to affect a large number of STEM students. UGA has identified nine gatekeeper courses within the six fields through an analysis of the DFW percentages.

The participating units have agreed to adopt a Peer Learning Assistant (PLA) strategy that may differ depending upon the specific attributes of the subject matter, class size and classroom, but all will include PLA training, coordination of logistics associated with PLA hiring and oversight, evaluation and continuous improvement, and faculty training and cross-departmental conversations.

Training for PLAs is being developed and provided initially utilizing several approaches. Eventually, the University plans to unify this offering, taking the best elements from the first offerings and combining them into a single course ensuring applicability across all STEM PLA opportunities. See http://www.ose.uga.edu/projects/peer_learning/2016.php for more information on the PLA project.

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