The AG-STEM Education Research Lab

The mission of the AG-STEM Education Research Lab in the Department of Agricultural Education and Communication is To advance AG-STEM teaching and learning by conducting research that informs practice. The work of the Lab should lead to better-prepared students for agriscience-related careers and for entry into colleges of agriculture and related sciences.

Science, technology, engineering, and math (STEM) occupations are critical to the continued economic competitiveness of the United States (Carnevale, Smith & Melton, 2011). The increasing demand for STEM talent allows for and encourages the disbursement of students and workers with STEM competencies across various career paths. However, those career paths cannot necessarily be predicted, so it is paramount for STEM-related programs to be on the cutting edge in terms of the skills and abilities needed to perform at some level of occupation and education.

The issues of recruitment and preparation for careers in agricultural sciences overlap. Therefore, the goals of the AG-STEM Education Research Lab include: 1) conducting research that is vital to the profession, and 2) translating that research into high quality products used by researchers and practitioners. This work is guided by the desire to prepare students for success in college, leading to a sustainable supply of well-educated agricultural scientists.

School-based agricultural education holds significant potential for helping to alleviate the shortage of agricultural scientists. A majority of high school agricultural programs are located in rural areas, providing the best opportunity to attract students who have experience in agriculture. In addition, programs in suburban and urban schools provide access to a large number of students who enjoy science and could be attracted to an agriscience field. Addressing the needs of students requires a partnership between agricultural education professionals and the agricultural scientists throughout IFAS. Hopefully, the College of Agricultural and Life Sciences will enjoy increased enrollments of students who are better prepared to enter the agricultural sciences degree programs.

Current research being conducted in the Lab is designed to create a curriculum framework that emphasizes the STEM principles within agriculture subjects in secondary school programs. The objectives are:

1. Identify practices, cross-cutting concepts, and disciplinary core ideas to be included in a secondary school agriscience program.
2. Identify teaching methods, resources (facilities, equipment, materials, etc.), and techniques currently utilized by exemplary teachers.
3. Develop an innovation configuration for implementing an agriscience program.

Continued on page 3...
TRC SERVICE: FACULTY CONSULTATIONS

The CALS Teaching Resource Center offers faculty members the opportunity for consultation related to teaching activities. A consultation may assist you in getting started on developing a new course, trying a new teaching methodology, assessing a current course or teaching practice, or various other areas of the faculty role. If you are interested in scheduling a consultation, please contact Dr. Grady Roberts (groberts@ufl.edu) or Natalie Coers (ncoers@ufl.edu).

SO TL GROUP

The Scholarship of Teaching & Learning group is designed to connect a faculty member's teaching and or course design practices to research. The group meets approximately once very 3-4 weeks. If you are interested in being a part of the Scholarship of Teaching & Learning group, please contact Dr. Grady Roberts (groberts@ufl.edu) or Natalie Coers (ncoers@ufl.edu).

FALL GLOBAL EDUCATION LAB SEMINARS

October 2 • 3-4PM • CSE E119
Developing Well-Prepared Agricultural Workers in Egypt
Kirby Barrick

November 6 • 3-4PM • CSE E119
Women’s Leadership Program in Paraguay: A Partnership to Promote Gender Equality and Female Empowerment in the Agricultural Sector
Marta Hartmann

December 4 • 3-4PM • CSE E119
Urea Deep Placement: A Win-Win Technology for Farmers and the Environment in Bangladesh
Walter Bowen

TES 2013 THANK YOU

Thank you to all of the presenters that helped make TES 2013 a great learning experience! We look forward to those who will aid in making TES 2014 a success!
THE AG-STEM EDUCATION RESEARCH LAB (CONT’D)
Contribution to the Teaching and Learning of Agricultural Science

The research results will likely be crucial to the continued success of agricultural education and the advanced education programs and careers for which graduates are prepared to enter. The end result contributes to an abundant supply of an educated workforce in agricultural careers that require scientific knowledge.

- Increased awareness of the practices, cross-cutting concepts, and disciplinary core ideas included in the agriscience program.
- Modified secondary school curricula that include agriscience competencies, formatted as a suggested secondary school curricula guide for use by state departments of education, local school officials, curriculum resource providers, and teacher preparation programs.
- Increased teacher effectiveness and higher quality agriscience programs, including exemplars of teacher effectiveness and agriscience program effectiveness to guide teacher professional development.
- Clarification within the agricultural education profession of what constitutes high quality agriscience programs.
- Increased student engagement in AG-STEM careers, beyond the scope of the current project timeline, leading to increased enrollment in STEM related majors and academic programs in post-secondary institutions as well as an increase in the number of individuals interested in STEM related careers in agriculture and natural resources.

Professional development opportunities will be designed and delivered at appropriate locations and times as determined in consultation with partner organizations (faculty in IFAS, state departments of education, preservice teacher preparation institutions, and teacher professional organizations). Programs will be designed to ensure that the methods used (online, workshops, etc.) best meet the needs of those who can utilize the information and products. Members of the project team have strong relationships with these organizations and those relationships will be utilized and strengthened to share the findings and outputs of this project with practitioners (classroom teachers, teacher educators, college faculty, and state education staff) as well as with researchers in the agriscience and agriscience education professions.

The AG-STEM Education Research Lab is coordinated by Brian Myers, Andrew Thoron, Kirby Barrick, and Katie Stofer with participation by 6-10 graduate students in AEC. More information regarding the Lab and how others can partner with the Lab can be found at http://aec.ifas.ufl.edu/ag-stem-lab.

Literature Cited

Check out this web-based clicker tool at https://www.tophat.com/. If you would be interested in a demonstration, please contact Natalie (ncoers@ufl.edu).
Newsletter submissions for the November/December edition are due by November 1.

**Director**
Dr. T. Grady Roberts  
117B Bryant Hall  
(352) 273-2568  
groberts@ufl.edu

**Program Coordinator**
Natalie Coers, MAL  
2023 McCarty Hall D  
(352) 273-3586  
ncoers@ufl.edu

**Vision**
Fostering excellence in the scholarship of teaching and learning.

**Mission**
Positively impact the academic experience of CALS students by providing services and resources designed to enhance the teaching abilities and professional development of CALS faculty.

**Programmatic Themes**
- Distance Education  
- Technology Enhanced Instruction  
- Teaching Effectiveness & Innovation  
- Outcomes & Assessment  
- Advising & Mentoring  
- Curriculum Development