Members

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Charles Atwood
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Karen Krapcho
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Inese Ivans
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William Nesse, PhD
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Aditi Risbud
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Louisa A. Stark, PhD
Research Associate Professor, Genetic Science Learning Center

Idalis Villanueva, Ph.D.
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Research Interests:

I am interested in discovering collaborations and potential partnerships for faculty and researchers in the College of Health. The College is home to seven departments and divisions: Communication Sciences and Disorders, Exercise and Sport Science, Health Promotion and Education, Nutrition, Occupational Therapy, Parks, Recreation and Tourism and Physical Therapy. Research interests in the College are broad and diverse; we currently have programs in schools throughout the state, and are looking to expand our reach.
Research Interests:

My group is interested in methods to improve student performance in large class settings. Initially we built a computerized assessment system that not only provided homework and testing services but also collected student response data. Once that system was in place and had undergone several years of use, we began an analysis of the student responses using a modern psychometric analysis tool called Item Response Theory (IRT). IRT analysis permitted us to determine the item difficulty and discrimination factors for individual test and homework problems as well as for entire tests and even a years worth of student responses. From that analysis we determined those chemical topics that are difficult for our students. Furthermore, we also determined questions that indicated which students were A, B, C, D, or F level. This helped us build our tests in a much more rigorous fashion than previously employed. It also showed us those chemical topics that needed to be emphasized or the teaching adjusted to improve student performance. Once instructional changes were initiated, we tracked changes in student performance over time. Based upon this prior work we instituted several in class, during homework, and in help session techniques that have improved student performance on tests from 4 to 12%. Publications on several of these techniques are now in preparation.

Here at the University of Utah we are in the process of instituting some of these same developments for the Utah undergraduate chemistry program. Furthermore, we are now engaged in the development of a statewide assessment system to use in concurrent enrollment courses throughout the state of Utah. Assessments will be delivered via computer to high schools throughout the state. Once completed, the data will be gathered electronically in Salt Lake City, analyzed using IRT, and information on student performance returned to the individual high school instructors for use in their teaching.
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Research Interests:

The central topic of research education in my group is in the area of structural colors and bioinspiration. Depending on the outreach/education audience, activities include 'make your own opal' and microscopy workshops (K-12), to investigating the origin of color in beetles and other insects (general public), and to more sophisticated studies of structural colors (education in spectroscopies and optical and electron microscopy etc) for undergraduate and graduate level students.
Research Interests:

Physical activity on STEM performance – he is the director of our Physical Education Teacher Education program.
Research Interests:

My expertise lies in test assessment and using that information to improve student performance.

The College of Education has a center called CATE: Center for the Advancement of Technology in Education. I currently direct the CATE center and would be happy to facilitate research partnerships among CATE faculty and interested collaborators. The Center for the Advancement of Technology in Education (CATE) explores the impact of technology-based interventions and tools in multiple environments, including formal educational settings (e.g., school) and informal (e.g., community) contexts. CATE’s mission is to develop a deeper understanding of how people use and learn with technology and how technology can be designed to facilitate meaningful educational outcomes in a variety of disciplines, including science, engineering, mathematics, education, health, psychology, and computer science. CATE seeks to bring together researchers from a variety of fields, united by their common interest in technology-based interventions and technology-supported learning. CATE also is committed to broadening impact beyond the university by building strong relationships with school and community partners. CATE’s activities focus on basic and applied research on technology use and impact, with additional work in the design and development of new digital tools and applications.
Research Interests:

Research Equipment and Testing Expertise

Expertise in use of eye tracking technology for studying cognitive processes involved in complex tasks (e.g., reading, problem solving, web search, deception).
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Research Interests:

I am a project administrator in the College of Nursing who works primarily on Health Resources and Services Administration (HRSA) training grants with the faculty. We have started branching out to the Department of Education as well as NIH grants that are a hybrid of research with an emphasis in STEM training.
Research Interests:

My interest in research education is primarily associated with providing laboratory research experiences for undergraduate and graduate students in metallurgical engineering. I believe research experiences provide outstanding opportunities for learning. I have participated in UROP, and I have had many research projects that have involved 25 undergraduate student researchers, who have each worked for 1-2 years in my labs. I have also had 22 graduate student research assistants, who have worked on projects for their graduate degrees in my labs.

In addition, I continue to have interest in electrochemical and battery technology that could interface with your impedance/short-detection technology in future collaborations.
Research Interests:

I have experimented extensively with different teaching pedagogies, including the flipped classroom, just-in-time teaching, and peer instruction. I currently teach a large introductory lecture course with about 400 students, and we have measured a broad range of preparedness for this student population (mostly engineers). I am extremely interested in finding ways to help prepare students better before enrolling at the U (i.e., during k-12) and also to provide them better resources and instruction upon their arrival.
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Research Interests:
I am an Asst. Professor in the Dept. of Geology and the Manager of Formal Science and Math Education Programs in the Center for Science and Mathematics Education. I have been working with science education projects for the past 10 years including 2 NSF “GK-12” projects that link science graduate students with K-12 classrooms, the Math for America program that provides training for career changers who want to become math teachers, the Masters of Science for Secondary School Teachers program for teachers who want to improve their science and math content knowledge, the REFUGES program that provides after-school science and math support and a summer science bridge program, and a program for Navajo and local school teachers to work together to learn about culturally relevant science teaching.
Research Interests:

My research interests focus on improving teaching practices and learning outcomes for K-12 students who have high incidence disabilities. My current work investigates the effects of using the Self-Regulated Strategy Development framework (a strategic approach for developing written expression skills and self-regulation of the writing process) for constructing arguments within a multi-tiered system of instructional supports in language arts, math, and science classrooms.
Bio:

Karen Krapcho, M.S. is currently working as an Outreach coordinator and Education for NSF grant 0652982: Utah’s Engineers: A Statewide Initiative for growth. She is responsible for evaluation and implementation of various recruitment and retention strategies as well as working with a cohort of undergraduate engineering ambassadors. Karen has a thesis-based Master’s in Biology, worked on the Human Genome Project, helped launch a successful biotech company and had worked as an 8th grade science teacher.
Research Interests:
An observational astronomer interested in the application of stellar spectroscopic tools (as well as advanced statistical, multivariate analysis, data mining and knowledge discovery techniques) to investigate topics ranging from the origins of chemical elements in the universe to the formation and evolution of stellar populations and galaxies, including the Milky Way and Local Group.
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Research Interests:
Developing tools to assess and evaluate writing and communication skills in engineering students.
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**Research Interests:**

I am interested in studying the effectiveness of educational materials and programs in achieving their intended learning goals or outcomes. The educational materials we have designed and studied include videos, print-based materials, web-based materials, and animated and interactive multimedia materials. These materials have been developed for K-12 students and teachers, families, patients, and adult members of the public. Educational programs we have developed and studied include K-12 teacher professional development programs and health education programs for diverse communities. The Genetic Science Learning Center, which I direct, has experience developing educational materials and programs in many fields (not just genetics). Our team of 18 includes expertise in all aspects of developing and producing many types of educational materials, designing and facilitating educational programs, and research/evaluation using both quantitative and qualitative methods.
Research Interests:

My research interests lie in the identification and assessment of overt or ‘hidden’ messages that influence engagement and retention for STEM students in the classroom. Particularly, I am interested in learning more about the differences in biological, physiological, and socio-emotional reactions in women and non-traditional students that are enrolled in or are interested in STEM careers. The intent with this work is to create new research methodologies in student engagement and retention to inform research, coursework design and intervention models in this area.
Robert Zheng  
Associate Professor  
Director of Graduate Studies  
Program Director of Instructional Design and Educational Technology  
Dept. of Educational Psychology

Research Interests:

My research interests broadly focus on cognition and learning technologies including multimedia and web-based learning, individual differences, online social network and communication, and complex problem solving.

I am interested in observing the constraints of human cognitive capacity in highly demanding tasks such as multiple rule-based problem solving and how learning technologies can alleviate such constraints by reducing, for example, the working memory load associated with complex learning. Another area of interest of my research is to look into the individual differences when interacting with various learning technologies which include multimedia and web-based learning. In addition to the areas mentioned above, I have a vested interest in general education and technology application, particularly in K-12 curriculum and educational technology integration.

http://tartarus.ed.utah.edu/users/robert.zheng/web/html/