

News from the Center for Research on Teaching Excellence

University of
California, Merced

Center for Research on Teaching Excellence

Office: 167 Kolligian Library

Phone: (209) 228-7950

Fax: (209) 228-4128

General email:

crte@ucmerced.edu

Robert Ochsner,
Director of CRTE

rochsner@ucmerced.edu

(209) 228-4171

Juana Dumagan,
Administrative Assistant

jdumagan@ucmerced.edu

(209) 228-7950

For information about
resources and upcoming
events, please visit:

<http://crte.ucmerced.edu>

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Special Edition: Listening to Future Faculty

Listening to future faculty is critical to understanding undergraduate success. Graduate students provide extensive feedback in support of student learning through responsibilities that include leading discussion sections or laboratories and grading homework, papers, quizzes, projects and exams. At four-year institutions, graduate students comprise at least 15% of an instructional staff, teaching on average one-third of lower-division courses. Numerically and functionally, graduate students are central to instruction.

Through the CRTE, UC Merced graduate students have many opportunities to build a teaching career through scholarship and outreach opportunities. Our instructional internship certificate program engages graduate students in the Teaching Matters series, with opportunities to design and facilitate workshops. The guidebook project involves post-candidacy graduate students in classroom and program-level assessment projects. Resulting articles and curriculum are published on [eScholarship](#). This edition of the CRTE newsletter features the innovative ideas and projects of our graduate students. We are listening!

Putting the "Active" back in Active Learning: A Fresh Perspective for Teaching Discussions.

By Jason Baumsteiger, Ph.D. Candidate, Quantitative and Systems Biology
Workshop leader of *More Active Learning Techniques*, April 12, 2011.

Are you tired of a bunch of bored students staring at you every week? Looking for something different to bring to the classroom? Try active learning. What is *active learning*, you say? Active learning is simply empowering students with their own learning by getting them involved in the actual process. Get them up and moving around, get them talking, and most importantly, get them engaged by using visuals, writing, and small group work. The possibilities are endless. But already I hear the excuses, such as "I do not have time for lengthy teaching preparations". The attitude you bring to the classroom determines how your students learn. Remember that active learning is malleable to any class or field and does not really require lengthy preparation to be effective. In fact, it shifts some of the work from the instructor to the students. Sound promising? Come to my workshop and let me show you how 2+ years of being associated with the Center for Research on Teaching Excellence has shown me what a difference active learning can make.

Humor in the Classroom

By Hoda Mirafzal, Ph.D. Candidate, Chemistry
Workshop leader of *Humor and Boundaries
in the Classroom*, March 30, 2011

As a graduate student and a TA, I've found the Center's workshops not only instructive but also as a platform for finding friends and a community in which to struggle with common questions and dilemmas of graduate life. One of these dilemmas is the use of humor in the classroom. On the one hand, you would like to build a friendly and pleasant atmosphere where learning becomes fun. On the other hand, you do not want to risk offending someone or making anyone feel uncomfortable. This workshop on March 30th will focus on these challenges and discuss the appropriate ways of using humor in the classroom.

What \$250 Taught Me

By Julie Phillips, Ph.D. Candidate, Quantitative
and Systems Biology

***Tell me and I'll forget; show me and I may
remember; involve me and I'll understand.***
~ Chinese Proverb

Three years ago I attended TA orientation during what is now called G.R.O.W. I listened, took notes, kept my folder filled with papers I never read, and quietly sat through the required attendance. I thought I was a "natural" at teaching. I had taught before. I was adjunct faculty before I moved to UC Merced. I really believed I didn't need to learn anything about teaching. Attending two teaching matters workshops, a requirement for my graduate group when holding a TA appointment, and three additional seminars landed me a line on my CV and \$250. I could do a lot of things with \$250, but what I failed to realize initially is that the internship that came with the money was the real prize.

As an intern, I had the pleasure of working with CRTE staff to conduct the requisite TA training

for all incoming graduate students. I was no longer listening in the crowd, no longer watching demonstrations of teaching techniques. I had become part of the "bigger picture". Working with the Center staff, I saw the deliberate demonstration of teaching and assessment techniques. I was taught to moderate group discussions. I was taught how to apply new technology in my classroom. I am no longer just aware of teaching tools, but I now know how to use such tools to improve the quality of learning for my students.

FIPSE Guidebook Project: Building Community for First-Generation Students

Since fall 2009, the CRTE's FIPSE¹ grant *Educating Future Faculty to Engage with the New Demographic* has provided 11 graduate student research appointments to investigate instructional practices designed to meet the learning needs of first generation college students. Forming the foundation of a guidebook, the resulting student publications are freely available on our *eScholarship* site at http://escholarship.org/uc/crte_gsguidebook.

Through December 2011, the CRTE will continue to provide 25% GSR appointments to a limited number of graduate students interested in conducting projects focused on classroom and/or program assessment-level assessment with the goal of improving curriculum and instructional practices for first-generation college students. During spring 2011, research fellows will be conducting classroom research on reading assessment and using 3-D representations in instruction as well as participating in program assessment projects in Biology, History, and Foreign Languages. If you are interested in learning more about this funding opportunity for summer or fall 2011, please contact the Project Coordinator, Anne Zanzucchi, at azanzucchi@ucmerced.edu.

¹ Fund for the Improvement of Postsecondary Education

Facilitating the Transition to Advanced Concepts in Undergraduate Education

By Mark Kerfoot, Ph.D. Candidate, Physics

The transition from lower to upper division undergraduate course work can present a challenge for students and instructors alike. This is especially true in the sciences, where students are required to grasp increasingly difficult concepts while simultaneously developing competence with advanced analytical techniques. Gaining fluency with the new analytical techniques is essential for student success and retention, but often receives only a cursory classroom treatment due to curricular time constraints. In an attempt to improve this situation, my FIPSE research project focuses on the impact of introducing advanced ideas to students in introductory courses through supplemental weekly activities.

My research was conducted with students in Physics 10, an introductory course on modern physics. The desired outcome was to increase student enjoyment and interest in physics while simultaneously increasing their preparedness for future quantum mechanics courses. To implement the research, I created a set of weekly supplemental activities for the students with the intention of presenting a gentle introduction to the mathematical concepts that underlie a mature understanding of quantum mechanics and provide an organizing framework for the theory. To provide a diversity of learning opportunities, the activities included reading text articles, using interactive web-based Java applet simulations, collecting written reflections about the activities from the students and providing my own weekly feedback to address student questions on the material. In the activities, special attention was given to introducing new mathematical concepts by analogy to familiar concepts and to emphasize the physical implications of the mathematical structure.

To ascertain the effectiveness of the supplemental activities in achieving my desired

goals, I conducted two anonymous student surveys, one at mid-semester and the other at the end of the semester. The data suggest a bi-modal student response to the activities, with more than half the students reporting significant benefits from the activities and the remaining students reporting little gain from them. Interestingly, there is a strong positive correlation between the students' final course grades and the number of supplemental activities completed during the semester. The research may have implications for improving curricular development as well as providing a specific set of materials for easing the transition from lower to upper division physics courses. The full research will be published in a forthcoming article in spring 2011 as part of CRTE's FIPSE research project, conducted by graduate students to improve post-secondary education.

Investigating Chem 2 Prelabs

By Deborah Lair, Ph.D. Candidate, Chemistry

As a TA, have you ever wondered why two lab sections for the same class perform so differently? Ever since my first semester as a TA here at UC Merced, I was intrigued by that phenomenon. Thanks to a fellowship provided by FIPSE to CRTE, I was able to investigate some aspects of this curiosity. For example, take one of my findings: student procrastination is a big factor in determining the "personality" of a lab section, and that personality begins development before class even convenes for the first time!

I studied the responses of Chem 2 students on two surveys and performed an analysis of grades received on laboratory reports. The goal was to determine how effective our current method of utilizing prelabs is, and whether there is a difference related to the time-management habits of the class, particularly that bad habit of procrastination.

(See *Prelabs* on page 5)



Help Is on the Way: Two Student Assistants Support Instructional Technology Projects



Thanks to a FIPSE grant award, the Center recently hired two student assistants who will support various instructional technology initiatives on campus. Debra Meneely (left in picture) and Ashley Garcia are undergraduates who are passionate about helping faculty and students use technology more effectively to improve teaching and learning. In the fall semester, they assisted with the electronic portfolio (e-portfolio) project. They visited classrooms using e-portfolios to provide technical demonstrations as well as to help troubleshoot problems. Besides e-portfolios, they are also working on converting past Center workshops into online resources. The hope is to make Center workshops more widely available by archiving past workshops into interactive online learning modules. Future projects they will tackle include assisting with hybrid courses, general CROPS support, and other instructional technologies.

Using CROPS to Go Green

Susan Miller, faculty in the Merritt Writing Program, and Mark Kerfoot, a Ph.D. Candidate in the Physics and Chemistry Department, are taking seriously UCM's pledge to be a sustainable campus. They are doing their part by leveraging the campus content management system (CROPS) to reduce their paper usage in the courses they teach. Here are their short testimonials about their experience using CROPS to go green.



"Managing sixty students and all their assignments taxes not only the trees needed to produce the paper but also the muscles of the instructor needed to carry those papers around. Using the Assignments tool, I can download all of their assignments from CROPS onto my computer, where I can do electronic grading using the Comments and Track Changes features within MS Word. Some of the benefits of electronic grading include neatly typed and easy to read instructor comments, time saved from collecting and returning papers in class, and quicker turn-around time." – Susan Miller

"As a TA, I've used the Grades, Assignments, and Discussion Board tools on CROPS. CROPS is a versatile and efficient method for communicating with students. The Grades tool is a great resource for organizing and maintaining student grades and makes it easy for the students to track their progress over the semester. The Assignments tool is great way of posting, receiving and grading assignments electronically, while the Discussion Board offers an easy medium for establishing student blogs. In general, I've found CROPS to be a good organizational tool and a time saver." – Mark Kerfoot



In the spring they will be offering two workshops on using CROPS tools to manage and grade assignments electronically. They will discuss various ways they have used CROPS to go green, and highlight how doing so has contributed to their effectiveness and efficiency as teachers. More details about their workshops will be available via Happenings Announcements as well as the CRTE website.

The Center is dedicated to helping faculty and TAs in the successful adoption and effective use of various instructional technologies in their courses to enhance teaching and learning. Should you have any instructional technology-related questions or needs, please contact Mike Truong, Faculty Development Coordinator for Instructional Technology (mtruong@ucmerced.edu or 209-217-7249).

You Are Teaching, but Are They Learning? – The Role of Clickers in the Classroom

Instructors who employ the use of an audience response system or “clickers” in their courses are able to actively engage and assess student learning during class. Instead of wondering whether students are “getting it,” instructors can use clickers to get immediate student feedback about their grasp of the materials being presented. The use of clickers is aimed at promoting content mastery, critical thinking, and deeper learning and engagement in the classroom.



On January 27, 2011, we will have a Turning Technologies Distinguished Educator come to our campus to share about the potential uses of clickers. Dr. Rick Olsen, Professor and Chair of Communications Studies Department at the University of North Carolina, Wilmington, has been using clickers since they first emerged as an option on university campuses. He has used clickers to make his large lecture class more rigorous and interactive. His presentation will focus on some of the “best practices” related to employing clickers in the classroom. More details about Dr. Olsen’s presentations will be available via Happenings Announcement as well as the CRTE website.



Student interns Ryan Sower and Topher Gehrmann

On a related note, the CRTE has two student interns dedicated to supporting faculty and their use of clickers in the classroom. Ryan Sower (rsowers@ucmerced.edu) and Topher Gehrmann (cgehrmann@ucmerced.edu) are available to consult with individual faculty or any unit on campus interested in employing clickers. They can assist with the technical hardware and software setup as well as provide suggestions on best practices.

The most exciting phrase to hear in science, the one that heralds the most discoveries, is not “Eureka!” but “That’s funny...”

~Isaac Asimov

Prelabs (continued from page 3)

Members of the faculty have been considering adding prelabs to Chem 2, so this was a timely investigation. The manner in which prelabs are incorporated can have a large effect on the preparedness of students when they arrive for labwork each week. Previous studies have shown that prelabs due a day or two prior to the experimental work improve self-reflection and content knowledge skills. The current work examines the effectiveness of a prelab due the day of the lab taking into account the procrastination tendencies of the lab sections. Looking at the results of the study can help guide us to best practices for utilizing prelab exercises.

Many of the results of the study may surprise you. Others may make you nod in recognition. Either way, there are implications that should prove both interesting and useful not only to TA’s, but also to advisers and instructors of record. Please look for it later this semester when it will be published at the eScholarship site: <http://escholarship.org/>

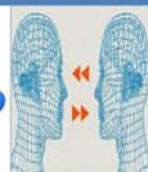
Spring 2011 WORKSHOPS

Teaching Matters Series

The *Teaching Matters Series* offers professional development in teaching and learning to all **graduate students**, especially **teaching assistants (TAs)**.

For more information about this series, contact Karen Dunn-Haley (kdunn-haley@ucmerced.edu or 209-228-4761).

- **Communicating Your Productivity** – 2/8 (Tues), 12-1pm, COB 322
- **Making Assessment Work for You Early in the Term** – 2/22 (Tues), 12-1pm, KL 159
- **Humor and Boundaries in the Classroom** 3/30 (Wed), 12-1pm, KL 159
- **More Active Learning Techniques** – 4/12 (Tue), 12-1pm, KL 159



Teaching and Technology Series

The *Teaching and Technology Series* introduces **faculty** (senate faculty and lecturers) and **graduate students** (especially TAs) to current and emerging technologies that can enhance teaching and learning. For more information about this series, contact Mike Truong (mtruong@ucmerced.edu or 209-217-7249).

- **Managing Assignments and Grades with CROPS** – 1/19 (Wed), 11-12pm, COB 322
- **You are Teaching, but are they Learning? Using clickers to promote content mastery, critical thinking, and student engagement in the classroom** – 1/27 (Thurs), 1-2pm, COB 322
- **Electronic Grading with MS Word** – 2/2 (Wed), 11-12pm, COB 322
- **Reading in the Digital Age** – 2/16 (Wed), 1-2pm, COB 322
- **The Use of Mind Maps in the Classroom** – 3/17 (Thurs), 12-1pm, COB 322
- **Effective Visual Presentations of Data** – 4/5 (Tues), 12-1pm, COB 322

For more information about CRTE services, visit: <http://crte.ucmerced.edu>