



SMI CONNECTIONS



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Directors' Corner

At the start of this academic year, SMI actively surveyed and assessed students' needs and progress via a comprehensive on-line poll. Based on responses received, SMI modified its long-range and short-range goals that paralleled plans to expand its resources and services.

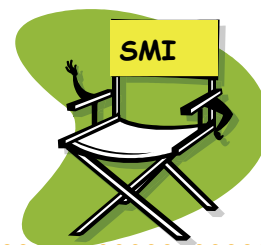
One immediate improvement we are pursuing is expanding our inventory of books for science and mathematics teacher preparation. To best meet student interests and needs, SMI researched and have begun to purchase books that will prepare our students for the State examinations (CBEST and CSET) and provide strategic guides to enhancing their professional skills. Similarly, SMI will provide greater student access to science and mathematics educational journals in print and on-line formats.

We have initiated the hiring of a full-time administrative assistant. By expanding our SMI team, we hope to provide you with more consistent office hours and increase your utilization of the Resource Center and its emergent library.

Realizing the challenges students face when they deviate from the traditional STEM degree paths, SMI continues its commitment to collaborate with STEM faculty members. Through these efforts, we anticipate unveiling by the end of this academic year newly created science and mathematics degree programs that emphasize science/mathematics teaching. Currently, faculty from the Departments of Physics, Mathematics, and Earth Sciences are examining their curricula for possible adaptations. SMI will relay official announcements once they are available.

Providing financial resources for SMI students is also a high priority. Responding to the students' concerns about fees for required credentialing examinations, SMI has established new policies and procedures to reimburse CBEST and CSET exam fees. Successful completion of these exams is not required for reimbursement, but documentation of the test results will be required. To learn more about how you may benefit from this new financial resource, please visit the "financial resources" section of SMI's website (<http://smi.ucr.edu>).

~Bradley C. Hyman & Leslie Y. Bushong



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TTSM (Tomorrow's Teachers in Science and Math) Officers working hard to launch the self-assembled student club in Winter 2008. To get involved, please contact smi@ucr.edu.

Winter 2008 – Recommended Courses

EDUC 3: Explore Teaching and Earn \$600

EDUC 3, *Imagining Teaching: Science/Mathematics Emphasis*, is a course designed for CNAS (College of Natural and Agricultural Sciences) and COE (College of Engineering) majors to explore teaching science and mathematics as a career while earning a modest scholarship stipend of \$600 and 3-elective units.

With Ms. Janet Brown's leadership and over 20 years experience in the Riverside Unified School District, EDUC 3 students will complete classroom field experiences through classroom observation and interactions. *To enroll in EDUC 3 (Thursdays, 5:10 to 7:00 p.m.), please contact SMI at smi@ucr.edu.*

In Ms. Brown's own words:

"Teaching is an extremely rewarding profession, filled with intellectual challenges and complex issues that run deeper than a quick glance at a classroom can reveal. The SMI courses, EDUC 3 and EDUC 4, have been designed to give insights into this complexity in order to understand the educational process from the other side of the desk. By observing and participating in the exemplary programs of the local public schools, SMI students have had a chance to demystify aspects of the subtleties of a teacher's program. This was then explored further in their college class where topics centered around researched-based learning strategies, student behaviors, and the effects of outside influences. By experiencing key concepts related to the profession, they are now better able assess their feelings about the career of teaching."

NASC 192: Build Your Professional Network Base

NASC 192, *Careers in Mathematics and Science Teaching*, is a 1-elective unit seminar that affords CNAS and COE students opportunities to meet and network with educational professionals from the local school districts. A series of informative panel discussions will be spotlighted at each NASC 192 seminar. Topics for this seminar's discussion include:



Learn from Professionals

- High School Teaching
- Middle School Teaching
- Admissions Process to Credential Programs
- School District Hiring Practices
- CMST Information/Application Preparation
- Introduction to the scholarly education literature

To enroll in NASC 192 (Tuesdays, 4:10 to 5 p.m.), please contact SMI at smi@ucr.edu

EDUC/MATH 104: Mathematics Education

Mathematics defines human existence. It is the foundation and the major building block of the sciences, computer science, technology and engineering. It is also connected to history, music, art, language, philosophy and describes much of our world both past and present. Mathematics was created to explain the world

and to create a mechanism for attempting to solve life's problems.

EDUC/MATH 104, *Mathematics Education*, focuses on the relevance of mathematics to any part of the human experience that requires critical thinking and problem solving. Students will experience the excitement of mathematics by

engaging in hands on activities and demonstrations designed to bring meaning and purpose to a variety of topics in quantitative literacy, geometry, algebra, and analysis. The goal is to assist future teachers with developing and realizing a new vision of "school mathematics teaching" pertinent to our contemporary and technologically complex society.

Spotlight on... Todd Johnsen

Todd Johnsen transferred to UCR in Fall 2005. At the end of Winter 2008, he is expected to have earned a Bachelor of Arts degree in Mathematics. Through extensive participation in SMI and CMST training activities, he is well-prepared for his future career in teaching mathematics. Todd's hard work has not only paid off with an early admissions to UCR's Graduate School of Education's Integrated Intern Teaching Credential and Master's in Education programs for Spring 2008, he has already been approached by several school district administrators about intern teacher opportunities. What led to his success?



Todd's Thoughts:

I am inspired to teach by seeing the eyes of a student light up after that "a-ha" moment when they finally understand a once difficult concept. Through CMST and my position as an instructional aide at Jurupa Valley High School, I have spent over 500 hours in the classroom focusing on pedagogy and classroom management. Field experiences have offered several opportunities to observe and handle different situations in the classroom.

When asked what words of advice Todd had for SMI students, his response was, "Get out to the schools and do what you can."

SMI Summer Institute Opportunity

SMI plans to develop a novel, one-week summer institute to train prospective teachers and credentialed teachers in the newest science/mathematics pedagogies, so they can return the excitement to secondary classrooms.

Based on a new teaching philosophy modeled in *Scientific Teaching* (Handelsman 2007), the summer institute participants will examine principles and practices of "scientific teaching" organized as a Scientific Teaching Summer Workshop by Dr. Bradley Hyman. Professor Hyman was recently named a National Academy of Sciences Education Fellow and is a recent alumnus of the Howard Hughes Medical Institute/National Academies of Science (HHMI/NAS) Institute on Scientific Teaching convened at the University of Wisconsin. At HHMI/NAS, the concept of how to institutionalize this modern pedagogy at home campuses was demonstrated and encouraged.

During the institute's morning sessions, participants will be exposed to the following elements that are core components of the scientific teaching method:

- active learning
- creating learning units
- devising teachable tidbits (small components of learning units)
- understanding by design (or backwards design)

In the afternoon sessions, participants will put the concepts learned during the morning into practice. This will be accomplished by "hands-on" lesson plan development that includes active learning theory (skits, media development) and other practices.

Details about SMI's Summer Institute and modest stipends will be made available during Spring 2008.

Expand Your Field Experience through CMST



The California Mathematics and Science Teachers Initiative (CMST)

program is a part of an overall master plan through UCR's ALPHA Center to improve mathematics and science education in the Inland Empire. This program provides paid apprenticeships to UCR mathematics/science/engineering undergraduates pursuing teaching careers in mathematics and science. As a result of this program, public school students in the Inland Empire benefit from the mathematics and science knowledge provided by CMST Apprentices and the public school teachers benefit from the assistance of the university resources and the content expertise of the CMST apprentices in their classroom.

The primary goal of the CMST program is to provide for these selected apprentices professional development in a mentoring setting. CMST provides a pipeline of activity and guidance resulting in each CMST apprentice securing: an intern position in the public schools; admission to a teacher credential education program or admission to an advanced degree in mathematics/science education.

Secondary goals include providing professional exchange opportunities between classroom teachers and CMST apprentices. These exchanges involve discussing current mathematics/science content knowledge and pedagogical content knowledge. Through contemporary ideas that are pertinent to the highly complex, technological world in which we live, it is possible to improve student

achievement in mathematics and science at the 4th-12th grade level with the goal of encouraging students to take more mathematics and science course preparing themselves for college and/or careers associated with these subjects.

For 2007-08 academic year, 36 students were selected from a field of 70, through an application process. Apprentices are placed in Inland Empire elementary and secondary schools during the year.

Students are selected through formal applications and personal interviews. **The application deadline for the 2008-09 cohort is April 25, 2008.** If you are interested in learning more about the CMST program please visit the Alpha Center webpage at www.alphacenter.ucr.edu or contact

Teachers' Corner

PROFESSIONAL ADVICE

From Karin Westerling
Science Teacher, Matthew Gage Middle School
SMI Mentor Teacher

Put Some Drama in Your Life: Teach

The ancient art of theater has acquired numerous adages. Many of these proverbs are useful for teachers for as Gail Gordon wrote: "Good teaching is one-fourth preparation and three-fourths theater." Here are a few maxims to consider:

Rehearse - or be carried away in a hearse. Prior preparation prevents poor performance. Practice that exciting demonstration before trying it with the students. pre-test your pH indicators and other materials.

"You need three things in the theatre -- the play, the actors and the audience, and each must give something." (Kenneth Haigh) The curriculum and you are not enough. The students must work, too.

There are no small parts. Keep track of the details. Develop a system for accepting, grading, recording, and returning student work.

Break a leg. Don't depend on luck - or the common sense of children. Set up your classroom and plan your activities to keep everybody safe.

The show must go on. Come fire drill, electrical outage, counselors, pass, or any other complication, your job is to teach your students. Consider multiple ways for students to learn a concept and demonstrate what they know.