**Directors’ Corner**

Despite economic challenges in California, “projections are that the demand for teachers will continue to grow through 2014-2015.” (State of Education 2006 White Paper) According to the California Employment Development Department (EDD), jobs that require math and science are among California’s fastest-growing occupations. Thus, projected demand for quality science and mathematics educators continues to rise. It is also estimated that “California middle schools and high schools will need about 33,000 new math and science teachers over the next 10 years.” (EdSource Report, January 2008)

Realizing that quality pre-teaching experiences can contribute to the retention and success of future teachers, SMI programs throughout the UC system continue to cultivate and prepare Science, Technology, Engineering, and Mathematics (STEM) students for careers in teaching. Since SMI’s systemwide launch in Spring 2006, STEM students have collectively completed over 28,370 field (classroom) hours under the guidance of credentialed mentor teachers. The SMI program at UCR has also demonstrated measurable growth in this brief period. In EDUC 3 and EDUC 4, which focuses on field work experiences, over 4,300 field hours were recorded by 167 students. As more STEM students actively seek SMI opportunities and benefits, including personalized pre-teaching advising, student diversity (see diagram to the left) continues to be preserved. In addition, teaching interest by subject matter (science vs. mathematics) is becoming more balanced: 42% in science and 58% in mathematics. This is a significant change compared to the average response from SMI participants during our first academic year (2006-2007): 32% in science vs. 68% in mathematics. Furthermore, resulting from strong pre-teaching preparation, 91% of UCR’s Spring 2008 Integrated Teaching cohort for science and mathematics have been hired by local school districts as paid intern teachers.

To prepare for the ever-expanding STEM teaching opportunities, SMI is committed during its third academic year, 2008-2009, to continue to: a) collaborate with STEM faculty members and educational outreach programs to prepare future science and mathematics teachers, b) provide financial and material resources to support classroom experiences preparatory to entering teaching credential programs, c) expand the professional network of school district administrators, and d) modify SMI services based on the student/teacher needs. Included in our vision are goals to improve (pre-) professional teaching training opportunities through such programs as SMI’s Scientific Teaching. This summer program was piloted in Summer 2008 and is featured in this newsletter edition (pages 2 and 3). To further explore SMI’s vast opportunities, visit us at http://smi.ucr.edu.

~ Bradley C. Hyman & Leslie Y. Bushong

---

### Fall 2008 Important Dates

<table>
<thead>
<tr>
<th>September</th>
<th>October (continued)</th>
<th>October (continued)</th>
<th>November (continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 (Saturday)</td>
<td>CSET Exam*</td>
<td>11 (Saturday)</td>
<td>23 (Thursday)</td>
</tr>
<tr>
<td>30 (Tuesday)</td>
<td>CSET Biology Test Prep Course**</td>
<td>CSET Biology Test Prep Course**</td>
<td>Integrated Teaching Program Information Seminar</td>
</tr>
<tr>
<td>PRIORITY DEADLINE: UCR Spring 2009 Integrated Teaching Application</td>
<td>14 (Tuesday)</td>
<td>3:10—4:00 p.m.</td>
<td>11:10 a.m.-12:00 p.m.</td>
</tr>
<tr>
<td></td>
<td>Teacher Resume Writing Workshop</td>
<td>Surge 284</td>
<td>Surge 284</td>
</tr>
<tr>
<td></td>
<td>1:10-2:00 p.m.</td>
<td>(Friday)</td>
<td>6 (Saturday)</td>
</tr>
<tr>
<td></td>
<td>Pierce Annex 111</td>
<td>Integrated Teaching for Spring 2009 Admissions Deadline</td>
<td>CBEST Exam*</td>
</tr>
<tr>
<td></td>
<td>18 (Saturday)</td>
<td>November</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CSET Biology Test Prep Course**</td>
<td></td>
<td>1 (Saturday)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CSET Exam*</td>
</tr>
</tbody>
</table>

* For CBEST & CSET Exam Details: [http://smi.ucr.edu/examresources/index.html](http://smi.ucr.edu/examresources/index.html)

** CSET Exam Preparation Details: [http://rimspi.csusb.edu/](http://rimspi.csusb.edu/)

For more details, visit [http://smi.ucr.edu](http://smi.ucr.edu)

---

### SMI Connections

- **SMI’s Summer Institute**: Pages 2 & 3
- **Financial Resources**: Page 4
- **Professional Network**: Page 4

---

**SMI Student Profile as of Spring 2008**

- White/Caucasian: 27%
- Asian: 39%
- Black/African American: 3%
- Chicano/Latino/Spanish: 30%
- Other/Declined: 1%

---

**Director’s Corner**

```
White/ Caucasian 27% Other/ Declined 1%
Asian 39%
Black/ African American 3% Chicano/ Latino/ Spanish, 30%

SMI Student Profile as of Spring 2008
```

---

**Fall 2008 Important Dates**
SMI's Summer Scientific

UCR’s SMI launched its inaugural 3-day intensive summer institute training - June 16 through June 18, 2008.

WHAT WAS DELIVERED: Based on a new teaching philosophy modeled in Scientific Teaching (Handelsman, 2007), Professor Bradley C. Hyman conducted this highly interactive program. 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 Sciences (HHMI/NAS) Institute on Scientific Teaching. Participants examined principles and practices of “scientific teaching” that provided them with a new set of pedagogical tools to help engage students with the wonders of science and mathematics. The ultimate goal was to equip teachers with research-based teaching to return excitement back to the classroom.

WHO RESPONDED: Approximately 50 applicants representing highly committed pre-service and credentialed science and mathematics teachers responded to this professional development opportunity. The diverse pool of applicants displayed a wide range of teaching-related experiences, ethnicity, teaching philosophies, and subject areas. The selection process placed a great premium on creating the most diverse cohort possible. Due to budgetary constraints, SMI was only able to invite and financially support 14 participants: 11 SMI students and 3 SMI mentor teachers. Upon successful completion of the training program, each participant earned a $500 stipend.

WHAT WAS EXPECTED: During the three-day training, participants worked in a variety of settings: independently as well as in small groups that were subject-matter specific and interdisciplinary to:

- Complete outside class reading assignments, including pre-institute assignments
- Demonstrate active learning
- Apply and model scientific teaching principles to science/mathematics topics
- Design and implement teachable units

Emily Muhu and Stephanie Fong implemented Scientific Teaching concepts to develop their group’s teachable tidbits unit.

Through collaborative learning, participants revealed and shared their learning strategies to create concept mapping activities.

Front Row: Nicole Yumori, Emily Muhu, Miguel Saucedo
Back Row: Michael Nelson, Karin Westerling (mentor teacher), Elizabeth Marroquin (mentor teacher), Leona Wong, Joann Valencia, Fallyn Thompson, Nancy Duong, Stephanie Fong, Inaya Ramos, Nathan Boss, Matt Schiller (mentor teacher)
WHAT WAS CREATED: Over 50% of the Institute was dedicated to subject matter group work that engaged participants in cross-fertilization of ideas. The goal was to create teachable units that focused on a teachable tidbit or on instructional materials with clear learning goals. The group work resulted in well-planned and impressively implemented lessons (mathematics, science, and interdisciplinary) and demonstrated active learning, backward design, diversity, and assessment. The lessons were presented on the final day of training. To preview these lesson outlines, please visit SMI’s website at http://smi.ucr.edu/summerinstitute/index.html.

PARTICIPANTS REVEALED…

What they learned and experienced:
"It seemed that backward learning is the most effective and brings about a clear vision [of the lesson]."
"Figuring the outcome helps accomplish the goal of the classroom"
"Once the learning outcome was decided [during lesson planning], the diversity aspect fostered the type of assessment we chose."
"Let students know learning outcomes...so they'll know what they should accomplish."
"...incorporate assessments in group work (pair-share) or individual assessment of students with clicker questions."

Their thoughts about the Institute:
"I think that the institute was efficient and very well organized."
"The makeup of the group was awesome (pre-service with credentialed teachers)."
"Dr. Hyman’s own use of diversity, pair-share, and EnGaugement [engage in learning + gauge what they are learning] helped us see good examples."
"This was an opportunity to work with people who think differently (diversity!). I liked the way everybody chimed in and was willing to contribute."

Future SMI Summer Institute
Based on the overwhelming response of interest and participants' feedback of the Summer 2008 Scientific Teaching Institute, it is SMI’s desire to continue its expansion and to offer this professional development opportunity in future summers. Final commitment will be based on SMI resources, including funding.
Financial Resources

- **Assumption Program of Loans for Education (APLE):** The APLE program ([http://www.csac.ca.gov](http://www.csac.ca.gov)) is a competitive teacher incentive program designed to encourage outstanding students, district interns, and out-of-state teachers to become California teachers in subject areas where a critical shortage has been identified, often in designated schools meeting specific criteria established by the Superintendent of Public Instruction. Under the APLE program, college students may qualify for up to $19,000 of student loan forgiveness from the California Student Aid Commission (CSAC).

- **Federal Perkins Loan Teacher Cancellation:** Students with Federal Perkins Loans may be eligible to apply for the Perkins Loan Teacher Cancellation ([http://studentaid.ed.gov/PORTALSWebApp/students/english/cancelperk.jsp?tab-repaying](http://studentaid.ed.gov/PORTALSWebApp/students/english/cancelperk.jsp?tab-repaying)) program in addition to the APLE program. Students may have up to 100% of their loan cancelled if they meet the criteria of the program.

- **Federal SMART Grant Program:** The SMART Grants ([http://www.ed.gov/about/insits/ed/competitiveness/ac-smart2.html](http://www.ed.gov/about/insits/ed/competitiveness/ac-smart2.html)) provide up to an additional $4,000 to third- and fourth-year students who major in mathematics, science, or critical foreign languages, are enrolled full-time, and maintain a 3.0 GPA in college. It is estimated that 500,000 students will qualify to receive these grants.

- **Knowles Science Teaching Foundation (KSTF):** The KSTF Teaching Fellowship ([http://www.kstf.org/](http://www.kstf.org/)) is explicitly designed to meet the needs of beginning high school science and mathematics teachers as they earn a teaching credential and through the early years of their career.

- **SMI Reimbursement Programs:** SMI provides a variety of financial assistance through its Reimbursement Programs ([http://smi.ucr.edu/participants/currentstudents.html](http://smi.ucr.edu/participants/currentstudents.html)). These programs include reimbursement of CBEST and CSET exam preparation and exam fees, classroom supplies for lesson implementation, and registration to pre-professional workshops.

For more details about these financial resources and others, please visit [http://smi.ucr.edu/aid/index.html](http://smi.ucr.edu/aid/index.html)

Professional Network

Tomorrow Teachers in Science and Math (TTSM) brings together students who are considering and/or actively pursuing careers in teaching mathematics and science. Its purposes are to: create a place where future educators can unify as a community and build both personal and professional relationships; prepare members for a career in education by providing opportunities to develop leadership skills required by the profession; and utilize passion for education by motivating disadvantaged high school students by encouraging them to pursue a college degree following graduation.

To get involved, please visit TTSM’s website at [http://ttsmatucr.googlepages.com/home](http://ttsmatucr.googlepages.com/home) or attend one of its general meetings. TTSM’s weekly general meetings for Fall 2008 are held on Tuesdays from 1:00 to 2:00 p.m. in Commons 260.

<table>
<thead>
<tr>
<th>TTSM Officers:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>President:</td>
<td>Imaya Ramos</td>
</tr>
<tr>
<td>Vice President:</td>
<td>Leona Wong</td>
</tr>
<tr>
<td>Treasurer:</td>
<td>Mary Camacho</td>
</tr>
<tr>
<td>Secretary:</td>
<td>Kayla Bui</td>
</tr>
<tr>
<td>Out-Reach Chair:</td>
<td>Edward Pascual</td>
</tr>
<tr>
<td>Community Co-Chairs:</td>
<td>Nicole Yumori &amp; Chiara Hodgkinson</td>
</tr>
<tr>
<td>Public Relations Chair:</td>
<td>Rosalia Cueto</td>
</tr>
</tbody>
</table>