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WISCONSIN WEEK

<http://www.news.wisc.edu/wisweek>

January 28, 2009

The Wisconsin Experience

Delta Program learns how to teach, teaches how to learn

By Kiera Wiatrak
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Teachers teach, students learn and researchers study. But the Delta Program in Research, Teaching and Learning turns teachers into students, students into teachers and both into researchers.

The Delta Program is the exemplar of the Center for the Integration of Research, Teaching and Learning (CIRTL), which strives to train graduate students, post-doctoral students, faculty and staff in the sciences, engineering and mathematics to be excellent researchers.

Delta members are encouraged to take Delta courses and small-group-facilitated programs, attend roundtable dinners and seminars, and participate in the Delta internship program to learn how to implement Delta's three pillars — teaching-as-research, learning community and learning-through-diversity — into the classroom.

"Fundamentally, the future faculty of the nation lies in the graduate students," says Robert Mathieu, Delta co-faculty director and astronomy professor. "If we can change the way graduate education happens, we can change the nation."

While the Delta program largely attracts graduate students and postdoctoral students, Mathieu says more than 400 faculty and staff have been involved since the pro-



Photo: Jeff Miller

Delta student Regina Murphy, a professor in chemical and biological engineering and biomedical engineering, participates in a group discussion during an Instructional Materials Development class. The class is co-taught by Lillian Tong, a faculty associate in the Center for Biology Education, and Jean Bahr, professor of geology and geophysics. The Delta Program is a research, teaching and learning community for faculty, academic staff, and postdoctoral and graduate students that is designed to help current and future faculty succeed in changing the landscape of science, engineering and math higher education.

gram began in the fall of 2003.

Mathieu points out that UW-Madison is renowned for its research, which he hopes Delta members will apply to teaching as well as to their disciplines.

The teaching-as-research pillar was born of this concept.

"The idea of teaching-as-research is that

to enhance student learning, which is our ultimate goal, you have to really understand what the students are learning," Mathieu says. "[Teaching] is a dynamic, interactive, constantly improving process. In order to do that improvement, we need to understand what the students are learning, and that's fundamentally a research

question."

Mathieu says that by applying concepts such as finding out what students know before classes are taught, exploring the literature, conducting experiments in the classroom, and gathering and analyzing data, Delta members are "constantly and dynamically improving their teaching through what they find."

The second pillar, learning community, emphasizes the importance of collaborating to share successes and form new ideas. Through formal once-a-month roundtable dinners, seminars and informal meetings between friends, Mathieu says Delta has evolved into a vital community that consistently generates new ideas for Delta and new concepts to bring to the classroom.

Learning-through-diversity, Delta's final pillar, strives to make use of the variety of races, ethnicities, backgrounds and experiences that all students bring to the classroom.

"One aspect of a successful class is that the class is welcoming for all," Mathieu says. "What learning-through-diversity does is try to raise the bar higher. We seek to create a national faculty who can use the diversity of the students and indeed of the faculty member to enhance the learning of all."

A grant from the National Science Foundation, with partial matching funding from the Graduate School, launched CIRTL

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Wisconsin Idea

Piano Pioneers brings musical opportunities to Madison community

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For the School of Music, the key to connecting with the Madison community lies within the keys of a piano.

The program Piano Pioneers invites community members who can't afford commercial lessons to take piano lessons with UW-Madison graduate students studying piano.

"There are so many students, so many people who don't have the opportunity for any kinds of lessons in the arts," says Piano Pioneers program coordinator Paola Savvidou. "It's a great way for us to build experience as young teachers and also a great way for all the students to be exposed to something they wouldn't have been exposed to otherwise."

Doug Jurs, a Piano Pioneers teacher and UW-Madison graduate student in piano performance, believes that teaching music to people who couldn't otherwise afford it is valuable to the music profession as much as it is to the individuals.

"I don't want music, especially classical

music, to be an elitist thing," he says. "I think that makes music interesting when you have different perspectives from different kinds of people."

The program is open to those with family incomes of less than \$80,000 a year.

While the lessons cost \$15 per half hour, students with family incomes of less than \$40,000 are eligible for up to \$10 scholarships per lesson. Those with incomes between \$40,000 and \$80,000 are eligible for up to \$5 scholarships per lesson.

Scholarships are funded by donations from the Eyjue Foundation and the Ward-Brodt Music Mall of Madison helps provide instrument rentals for students.

Now in its third year, Piano Pioneers currently enrolls 14 students, most of whom are children under age 10.

Students are accepted for two semesters but are encouraged to reapply for another year of lessons once the term is over.

However, according to Savvidou, a graduate student in piano performance and pedagogy, the program received some 30 applications, and Savvidou still gets weekly phone calls and e-mails asking about available spots.

Piano Pioneers has received a grant from the Ira and Ineva Reilly Baldwin Wisconsin Idea Endowment, which will allow the program to place a piano lab facility in one of the local schools and provide group piano lessons.

"I think a huge, important part of being an artist is reaching out to the community," says Jurs. "So I think you'd get invaluable lessons if you went into the kids' environments and see where they go to school and teach them in that environment."

But regardless of background, both Jurs and Savvidou agree that learning music has inherent benefits for all kids, such as building self-confidence and discipline.

"I think music is the most powerful thing we have to teach all parts of the brain," Jurs says. "It's the only thing that I know of that teaches the emotional side of being a human as well as the analytical and mathematical things."

Savvidou agrees. "Nobody else is able to express what you have to say," she says. "Everybody has something different to say that is unique, and this is valued in all the piano lessons."

And of course, part of expressing yourself is showing others what you can do. Piano Pioneers students participate in two recitals each semester.

"When they go up there on stage in front of 40 or 50 people in a recital hall, and they're really nervous, I can completely identify with that," Savvidou says. "But after a successful performance, you see the pure joy in their eyes, and that's one of the most rewarding things."

While the recitals are a chance for the kids to show off what they've learned, they're also an opportunity for proud parents to gloat in their children's successes.

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in January 2003, which in turn created Delta in September of the same year. The provost has provided funding for the last two years.

Delta members are encouraged to be as involved as their schedules allow.

This semester, the Delta learning community has 100 members formally enrolled in semester-long courses and programs, while more than 300 people show up to the occasional seminar or roundtable dinner. They have had more than 1,700 participants since its inception.

While Delta graduate students and postdoctoral students can earn a Delta certificate, faculty members also enroll in Delta courses to solve specific teaching challenges.

In fact, Delta courses often use Delta principles when teaching Delta students. "When we're thinking about what we want the graduate students and postdocs to learn, we're thinking about what kind of learning objectives do we have for them in the Delta courses? How best can we get them to learn those concepts? And how can they put them into practice?" says Chris Pfund, Delta associate director, who often

teaches Delta courses.

Delta courses have inspired Delta members to do the same in their own classroom environment. Jeff Klukas, a physics graduate student, has taken three Delta courses, including the Instructional Materials Development course. In that course he created a teaching-assistant training workshop that focuses on how to facilitate group work activities in a discussion section.

Klukas, who hopes to be part of the faculty at a smaller college after he graduates, says he still facilitates the workshop every semester.

"The feedback I get from participants each time has allowed me to better tailor the workshop to appeal to a variety of learning styles and to become more focused about which activities best serve the participants," he says.

Delta graduate students and postdoctoral students can also apply for Delta internships where they work alongside a faculty or instructional staff member to solve a specific teaching and learning problem.

"Focusing only on developing our research skills overlooks a very important

part of the faculty role within the university," says Erica Siegl, a sociology graduate student and former Delta intern. "Delta courses ask participants to consider what it means to learn, and what understanding looks like."

Samira Azarin, a chemical and biological engineering graduate student, says the Delta program largely influenced her decision to continue her graduate studies at UW-Madison.

"The existence of a program such as this one demonstrated the university's commitment to education, and I wanted to pursue my graduate work at an institution that truly valued teaching," she says.

Azarin adds that Delta has greatly impacted her teaching style.

"I now see the classroom as somewhat of a laboratory — a place to try out new teaching techniques and assess student learning," she says. "I am continually trying to implement new learning styles while gauging student understanding."

Robert Jeanne, an entomology professor, says Delta has inspired him to use new techniques in the classroom, such as clickers and peer instruction, as well as

developing software to allow better communication between professors of large lectures and their students.

But it's not just UW-Madison that benefits from Delta's efforts. The CIRTL network, established in 2006, carries the principles of the three pillars to five other major research universities and encourages them to implement them in ways appropriate for each school.

As Delta grows, it continues to receive recognition for its efforts. On Monday, Feb. 9, Delta will be presented with the National Consortium for Continuous Improvement in Higher Education's Award for Leveraging Excellence.

During the next five to 10 years, Mathieu says he will step down from co-faculty director of Delta to allow new leaders a chance to guide Delta in their own directions.

"The mark of a really successful program, a successful community, is that it continues on, no matter who is guiding it," he says. "A vital community will be able to just recreate itself in exciting new ways. That's what I would like to see with Delta." ■

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"As soon as you become a parent, all you want for your kids is for them to do well and really try hard," says Sonia Spencer, the mother of two Piano Pioneer students, Donovan and Carol (Cece) Spencer. "When they're able to go to a recital and do the whole recital without messing up, that's just amazing to see that your 8-year-old kid can do that."

Spencer heard about Piano Pioneers through a program at her children's school.

"I think them being able to play an instrument, any type of instrument, just helps them out in life, with school and just being well-rounded people," she says. "It was one of those opportunities that you just take."

Twins Donovan and Cece have been in the program for two years and will continue reapplying each year.

Similarly, Laurie Horton, mother of Piano Pioneers student Jacob Horton, 9, heard about the program from the music teacher at her son's school.

"I could tell he had some musical ability, but we couldn't find a piano teacher we could afford," she says. "I think you couldn't put a price on this program. It's



Piano Pioneers program coordinator and instructor Paola Savvidou (left) works with Jacob Horton (right) during a piano lesson inside the Mosse Humanities Building. Piano Pioneers is a School of Music community outreach program that offers scholarship lessons to children and adults in the Madison community who would like to study the piano but can't afford the full cost of lessons.

wonderful. In school they keep having to cut budgets and cut things they offer, and it's a shame to lose the magic of music. I

would love for a lot more people to have the opportunity to get into this program."

Vicky Hitt, 16, applied for the program

for a chance to work affordably with advanced piano teachers because she had musically outgrown her old one. She hopes to continue studying piano in college.

Hitt agrees that the program provides invaluable experiences to people who wouldn't have them otherwise.

"I think [Piano Pioneers] is important mainly because a lot of people aren't super rich. They can't afford to pay \$40 a lesson," she says.

While the students and parents are grateful for the opportunity to learn music, both Savvidou and Jurs admit that the program greatly benefits the teachers, as well.

"I think it's equally beneficial for both the student and the teacher," Savvidou says. "The student gets something out of it that will last a lifetime. They'll never forget taking piano lessons and they'll never forget all the experience they had and all the skills they have acquired. And also for the teachers, it influences the way we perceive teaching and the way we're going to teach the next students. It stays with you." ■

Grants *Continued from page 16*

Heights School District, the outpost will provide K-12 teachers with accessible professional development through sharing of inquiry-based science curricula; provide a physical location where teachers, students, and community members can carry out investigations of nearby diverse natural areas in southwestern Wisconsin; and serve as a model for successful partnerships among K-12 schools and UW System faculty.

■ **Wider Economic Opportunities for Wisconsin Farm Families: Small-scale**

Food Processing Training, led by associate professor of food science Barbara Ingham and professor of food science Steve Ingham.

Wisconsin is a prime agricultural state and increasingly owners of small family farms are diversifying their income through manufacture of processed products such as jams, jellies, salsa and pickles. Many of these food products have found a ready market through outlets such as farm markets and on-farm sales, while community groups see small-scale food processing as a way to

empower clients to develop new skills. In July 2008, the Wisconsin Department of Agriculture, Trade and Consumer Protection began enforcing regulations that require food safety training for all small-scale food processors. This initiative will provide a training program aimed at helping Wisconsin farmers and others produce safe, high-quality processed foods suitable for sale to the general public.

■ **Wisconsin International Year of Astronomy-Galileoscope**, led by

James Lattis, director of UW Space Place.

One Wisconsin contribution to the International Year of Astronomy is the 2009 statewide Galileoscope project. This effort will involve family groups and school children in state parks, recreational areas, and communities who will build their own telescopes from available kits and use them to explore the sky. Galileoscope activities will also be available online. ■