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Testimony April 26, 2006

Senate Committee on Commerce, Science, and Transportation Subcommittee on Technology, Innovation and Competitiveness
Hearing on “Fostering Innovation in Math and Science Education”

Thank you for this opportunity to speak to you today about UTeach, an innovative and very successful teacher preparation program for Math and Science majors.

In 1997 we initiated a highly successful teacher preparation program **for math and science majors called UTeach**. Research 1 universities have not traditionally assumed much responsibility for teacher training, and indeed prior to establishment of the UTeach program, UT Austin had very few science or math majors pursuing certification: 4 science; 19 math in 1996 from a body of about 8300 majors. It was usually a fall back or last resort for students who did not achieve their primary goal such as admission to medical school, or graduate school, and many who were certified did not actually go on to teach.

We wanted to create a program that would attract **large numbers of strong math and science majors to teaching, and prepare them for success; we believe we have achieved that goal**. Since the inception of the UTeach program **we have doubled the number of math majors and increased by 5-6 times the number of science majors being certified**. Enrollment is at 470 students this year and this year’s 74 graduates will bring the total number of grads to about 350. Approximately 89% are teaching, planning to teach, or actively searching for teaching positions. 75% of those who graduated in 2001 or before are still teaching.

The quality of UTeach students is very high. As a group they have higher SAT scores, and higher grades in comparison to their College of Natural Sciences (CNS) undergraduate peer group. Approximately one-quarter of UTeach students are traditionally underrepresented minorities who we believe will be strong, inspiring role models for the minority students in their own classrooms —this is substantially more than in the overall UT undergraduate population.

These strong students are choosing this career path as a **first choice**; they are dedicated and excited about teaching and they emerge at graduation with excellent content knowledge and considerable experience in classroom situations. A number of our students have assumed leadership positions in their schools such as department chairman, director of curriculum, or AP teacher, even as early as their second or third year of teaching.

The National Research Council¹ and the US Department of Education² have cited UTeach as a model program. Many other institutions in Texas, Louisiana, Colorado, and elsewhere are exploring ways to create similar programs. California has just begun an initiative **based on the UTeach model** that will be the largest of its kind in the nation.

The key elements of UTeach program that we believe are responsible for its success are

1. Adherence to national and state guidelines for math and science education.
2. Employment of **outstanding, experienced high school and middle school teachers as instructors, advisors and field supervisors along with regular Science and Education faculty**.
3. New **pedagogy classes** to replace the traditional general education courses focused on how to teach math and science, intermingled in the curriculum with discipline courses.

¹ *Educating Teachers of Science, Mathematics, and Technology: New Practices for the New Millennium*, National Academy of Sciences Press, (2000); *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academy of Sciences Press (2005)

² www.ed.gov/news/speeches/2004/03/03182004.html;
www.uteach.utexas.edu/about/recognition/Title11Report03.pdf

4. Inclusion of **field experiences in the pedagogy courses at every level.**
5. **Aggressive recruitment of science and math majors** to teaching. This involves:
 - Advertising the program to new and continuing math and science students
 - **Providing monetary incentives to try the program**
 - UTeach pays **the tuition for the first two courses.** These focus on **field teaching experiences.** Students are carefully prepared by our master teachers to teach math/science lessons in public school classrooms in pairs 4 times a semester, first in elementary and then in middle school classrooms under outstanding classroom teachers. This allows them to try teaching and in many cases is a very effective draw into the program.
 - **Internships for students who need to work, doing jobs that are relevant to the teaching profession**—working in museums, AISD classrooms, informal science clubs, etc. These internships help both the students and the organizations for which the students work and reinforce their experience and commitment to teaching.
 - **Scholarships** based on good performance in the program, especially for upper-division students
6. **Ability to complete the full program with a major in math or science and teacher certification in four years.** We have developed a streamlined version of the UTeach curriculum for Post-baccalaureates that can be completed in one year.
7. **Induction support for graduates.** Many new teachers leave the profession within the first few years of service. We believe that a substantial support system, including assistance with lesson plans, curriculum and advice on classroom management can make the difference between first years that are rewarding or intolerable and we have a program in place to supply this kind of support.

We have also developed summer coursework leading to a **UTeach Masters degree in Science and Mathematics Education.** This provides the possibility of an advanced degree as part of the long-term support we provide to our UTeach students..

Thank you for your kind attention. I'd be happy to answer questions.

- | Features of UTeach Success |
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| <ul style="list-style-type: none"> • New, highly relevant pedagogy courses focused on teaching math and science • Early, intensive and continuing field experiences • The guidance and inspiration provided by master and mentor teachers • The aggressive recruitment of science majors by invitation to take the two initial UTeach courses for free • Paid internships that offer opportunities for community outreach and informal science teaching that reinforce teaching commitment • Compact degree plans that allow most students to graduate in four years having completed both their content courses and the requirements for teacher certification • An accelerated program for post-baccalaureate students that gets them into the classroom quickly but prepares them well • A technology-rich curriculum that emphasizes the use of new educational tools in instruction • A research experience that can help transfer the thrill of new discovery to the public school classroom • Mentoring of new teachers and providing a path to an advanced degree |