

Science and
Mathematics
Education

Advisory
Committee
Handbook

**September
2022**



UTeach*Dallas*

The University of Texas at Dallas

Natural Sciences and Mathematics

OR SCIENCE? TEACH IT!

A message to SME Advisory Committee Members

Thank you for giving your time and expertise to guide the teacher preparation, educator professional development, and science and mathematics outreach programs of the Department of Science and Mathematics Education (SME). We look forward to working with and learning from you.

This SME Advisory Committee includes representatives from partner K-12 public school districts, the Region 10 Education Service Center, University of Texas at Dallas STEM faculty, and local business and community organizations.

We recognize that service on an advisory committee requires time and commitment. The SME faculty and staff appreciate your service. We look forward to strengthening and building our partnerships with each of you and your respective organizations in the service of teachers, students, and the community.

Sincerely,

Associate Professor and Department Head
Science and Mathematics Education
Co-Director UTeach Dallas
The University of Texas at Dallas

University Vision and Goals

From the Office of Dr. Richard C. Benson, President of The University of Texas at Dallas:

“At UT Dallas, our vision is to be one of the nation’s best public research universities and one of the great universities of the world. We are ideally positioned to accomplish this goal as a global leader in innovative, high-quality science, business, and engineering education and research.

As president, every decision I make is intended to further this vision and to support UT Dallas’ mission to produce graduates prepared for life, work and leadership; to advance our educational and research programs; and to transform ideas into actions that benefit the citizens of Texas.

UT Dallas’ exponential growth has put us on a trajectory to achieve several key goals that will also help us to fulfill our greater vision.”

“We aspire to be:

- A first-rank public research university with focused centers of excellence that is prepared to meet the challenges of a rapidly changing, technology-driven global society
- A global force in innovative, transdisciplinary research and education in emerging areas of technology, science and learning
- A groundbreaking leader both in framing and answering the questions faced by business, policy makers and the public
- A synergistic partner with local industry, government and cultural organizations as well as local K-12 schools, colleges and universities
- One of the most creative, innovative universities in the nation and world.”

(Source: <http://www.utdallas.edu/president/vision/>)

Mission of Science and Mathematics Education

The faculty of the Department of Science and Mathematics Education are dedicated to preparing and supporting excellent teachers of science and mathematics, enriching science and mathematics educators through high-quality professional development, and providing science and mathematics educational outreach to PK–16 students and members of our community.

Science and Mathematics Education Academic Programs:

UTeach Dallas Science, Mathematics, and Computer Science Teacher Certification Preparation:

Housed in the Department of Science and Mathematics Education within the School of Natural Sciences and Mathematics, the UTeach Dallas program began preparing the next generation of highly-qualified secondary (grades 6–12) science and mathematics teachers at UT Dallas in 2008. In 2007, UTeach Dallas was selected as one of an initial 13 universities nationwide to replicate the nationally recognized original UTeach program at The University of Texas at Austin. UTeach Dallas completed high fidelity replication in Summer 2012, and has graduated 310 students as of Fall '22. UTeach Dallas recruits from among the outstanding UT Dallas Science, Technology, Engineering, and Mathematics (STEM) undergraduate population as early as the summer before their freshman year, from STEM degree holders (working in partnership with the departmental graduate programs). In addition to teacher preparation coursework focused on early field experiences, the UTeach Dallas program provides scholarship and internship opportunities, provides induction support, and pays stipends to the many mentor teachers who work with UTeach Dallas students in partner school districts. Much of the work of UTeach Dallas is made possible through the generous support of our funders and the School of Natural Sciences and Mathematics.



UTeach Dallas embraces the elements of success of the UTeach Model:

1. Create an Organization Devoted to Preparing Teachers
2. Develop Institutional Support
3. Attract and Retain Students
4. Create an Instructional Program
5. Provide First-rate Instruction
6. Strive for Continuous Program Improvement

Master of Arts in Teaching:

The Department of Science and Mathematics Education has two graduate programs for teachers either already teaching in local schools or in preparation for teaching through UTeach Dallas. The 36-credit hour Master of Arts in Teaching (MAT) programs in Science Education and Mathematics Education share a common set of core classes and provide a seamless blend of science/mathematics content and pedagogy tailored to meet the individual teacher's needs. Many graduates of the MAT programs rise to leadership positions such as department head or science or mathematics coordinator. The MAT in Science Education works with educators and instructional leaders of pre-kindergarten through community college (PK-14) and informal education. The MAT in Mathematics Education works with educators and instructional leaders of grades 4 through community college.



Department of Science and Mathematics Education's Family of Outreach Programs

Faculty, staff, and students within Science and Mathematics Education work with teachers, students, and organizations within the local community to provide enriching science and mathematics educational experiences. Outreach is also focused on communicating advances in science, mathematics, and STEM education. Programs include:

- *UTeach Dallas Induction* supports graduates from UTeach Dallas and sister UTeach sites who are teaching in the Dallas/Fort Worth area during their first three years in the teaching profession. UTeach Dallas Induction is partnered with with multiple joint sessions throughout the year.
- *UTD's Zebra Fish Institute Professional Development Program -ZSI* is a unique professional development opportunity that provides a weeklong workshop where grade 6-12 science educators discover inquiry-based learning tools through hands-on experience with zebra fish. Since zebrafish share 70% of their genes with humans, they are at the forefront of biomedical research. In over 1,000 laboratories around the world, they are helping scientists understand complex diseases such as cancer and muscular dystrophy. ZSI

leverages these benefits to excite students about scientific inquiry, and to help them understand the connections between science and the world in which they live.

- *The UT Dallas WeTeach_CS* program, with funding from the Texas Instruments Corporation and the statewide WeTeach_CS (weteachcs.org) initiative, is designed to prepare science and math teachers to teach computer science and/or incorporate computer science into their classes. In 2016-2017, 30 participants were trained for an average of 83 contact hours in two professional development courses and other optional opportunities. The UTD WeTeach_CS is in partnership with faculty from Computer Science
- . Another 18 teachers are participating this fall, with more expected for a final round of WeTeach_CS funding.
- *UT Dallas Women in Physics Camps* were founded in 2003 and each summer provide regular and advanced camps targeted to early and middle school girls at no cost to participants, who are selected based on essays and science teacher recommendations.
- *Comet Chemistry Camps* began in summer 2016, with funding from the local chapter of the American Chemical Society, and target the same population as the Women in Physics camps.
- *UTeach Dallas Internships* support a number of organizations within and external to the university. Examples of current and past internal organizations include the Department of Science and Mathematics Education, the Science and Engineering Education Center, Women in Physics Camps, Comet Chemistry Camps, the Center for STEM Education and Research, and the Department of Mathematical Sciences pedagogical and instructional interns. Examples of current and past external organizations include the Dallas Museum of Nature and Science/Perot Museum of Nature and Science, SciTech Discovery Center, Kids in Chemistry – Science in Everyday Experiences, and the Richardson Independent School District Environmental Studies Center. UTeach Dallas interns also tutor in local school districts.



Purpose of the SME Advisory Committee: Provide opportunities for communication and input between stakeholders and SME programs preparing and serving local science and mathematics teachers and their schools.

Roles and Responsibilities of SME Advisory Committee Members:

- 1) Personal or designated representative attendance at annual Advisory Committee Meetings.
- 2) Provide suggestions and feedback regarding program planning, delivery, evaluation, and major policy decisions of the teacher preparation program UTeach Dallas and programs for professional development of in-service teachers within the Department of Science and Mathematics Education at the University of Texas at Dallas.
- 3) Acknowledgement of mandatory compliance activities for Advisory Committee Members on Texas teacher preparation programs.
 - a. Invitation letter acceptance with signature
 - b. Advisory Committee training attendance. Acknowledge receipt of this advisory committee handbook (email acknowledgement or signature at face-to-face meeting).

Future Opportunities: The SME Advisory Committee additionally provides its members and the represented organizations opportunities to establish and grow partnerships with SME academic programs, outreach, and research into areas such as:

- Recruitment of high-quality STEM majors and STEM degree holders into the teaching profession,
- Retention of STEM majors by the university,
- Retention of high-quality STEM teachers in the teaching profession,
- Development and support of STEM teacher enhancement and leadership opportunities,
- Development of scientific, mathematical, and computational understanding and ways of thinking in both teachers and students,
- Hallmarks of high-quality teaching practices and professional development,
- Classroom/K-12 student impacts of SME teacher preparation and teacher professional development programs.