



The University of Texas at Austin
Office of STEM
Education Excellence
College of Natural Sciences

STEMx BIENNIAL REPORT

AY24-25 and AY25-26



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We support CNS instructors in making STEM teaching a joyful, scholarly pursuit, strengthening learning environments that help students thrive, lead, and change the world.

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A Message From the Director



As I reflect on the past two years, the first thing that comes to mind is overwhelming appreciation for our CNS and department leaders, the STEMx team (pictured below), the STEMx faculty fellows, all of our CNS faculty, TAs and UGCAs, and our partners across campus and beyond. We have worked with hundreds of people who put their hearts and souls into creating educational environments that equip students to lead with curiosity, confidence, and purpose long after they leave the classroom. Our success depends on the dedicated efforts of all these people.

I am proud of our growth in the previous two years. While STEMx continues to be efficiently staffed by faculty who also teach in CNS departments, our fellowship models expand our reach. For example, our trained CETAP faculty fellows conducted 136 teaching assessments this year while bringing their peer-review expertise to their departments. We also started to create opportunities for faculty to engage in teaching scholarship; one milestone was the publication of an open access book about AI in STEM education with 21 faculty and student authors. These accomplishments and others are outlined in the next pages and on our new STEMx website (www.stemx.cns.utexas.edu).

I am excited for the future of STEMx. With your help, we will strengthen partnerships, improve offerings, and align activities with the needs of CNS faculty and departments.

Best wishes,

A handwritten signature in black ink that reads "Kristin D. Patterson".

Kristin D. Patterson

Assistant Dean for STEM Education Excellence



Course & Instruction Design

We partner with instructors to design and refine courses that are inclusive, engaging, and evidence-informed.

Course Design Institute

The Course Design Institute is a two-day working institute in which CNS faculty design or redesign courses with purpose. Using backward design, participants clarify course goals, align assessments and learning activities, and refine course decisions in a collaborative, cross-departmental setting. The CDI emphasizes hands-on course development rather than lecture-based training, helping faculty leave with practical progress on real courses.

378

total enrollments
2018-2026

257

unique faculty

27%

return for a
second CDI

"I feel much more competent now to design better courses for the upcoming semester. The interactive nature of the workshop and the opportunity to learn from my peers was truly invaluable."

- CDI Participant



NEW MODULES IN 2025 & 2026

» CAREER READINESS

Embed skill development and workforce alignment into assignments and assessments.

» AI FOR STUDENT LEARNING

Design transparent, course-aligned AI applications and policies.

» BUILDING COHESIVE COURSE SEQUENCES

Examine how courses align within a department or degree plan.

» STUDENT SUCCESS & MINDSET PRACTICES

Adapt and incorporate strategies that encourage healthy learning mindsets and persistence.

Concentration in Teaching & Mentoring

The Concentration in Teaching and Mentoring strengthens graduate students' and postdoctoral fellows' teaching and mentoring through in-person coursework and completion of asynchronous Canvas modules tied to digital badges. Participants develop skills and produce tangible artifacts that can be used in courses, job applications, and promotion materials.

TEACHING PATHWAY

BADGE: COURSE DESIGN

- Use backward design principles
- Align objectives, assessments, and activities
- Clarify syllabi, course structures, and technology choices



BADGE: REFLECTIVE TEACHING

- Reflect on teaching practice
- Use student feedback and learning data
- Iterate through evidence-informed course design



MENTORING PATHWAY

BADGE: RESEARCH MENTORING

- Clarify expectations and shared goals
- Obtain actionable feedback
- Apply mentoring frameworks and communication strategies



BADGE: MENTORING UP

- Navigate mentoring relationships
- Seek feedback and advocate for goals
- Use institutional and professional resources



Foundational Teaching Assistant Training

Foundational TA Training prepares graduate and undergraduate teaching assistants to support student learning in CNS courses.

The program combines self-paced modules, guided conversation, and active learning. Together, these components build core teaching knowledge, clarify responsibilities and policies, and strengthen skills for student engagement, time management, and common classroom scenarios.

"I felt that this training was well-rounded and taught me everything I needed to know."

- Graduate TA

3000+
TOTAL TRAINEES
2019-2026

FROM 2024-2026:

779 Undergraduate
Course Assistants

361 Graduate Teaching
Assistants

"The training has everything and more to help me be a successful UGCA."

- Undergrad Trainee

Observation, Feedback, Improvement

From low-stakes classroom visits to structured coaching, we support continuous improvement in teaching practice at scale.



Teaching Discovery Days

Teaching Discovery Days is an annual CNS event that invites faculty to open their classrooms, observe peers, and discuss teaching in real settings. The program builds connection across departments while recognizing faculty who positively influence student learning.

What Makes TDD Different

- Low-stakes observation
- Real classrooms, not simulations
- Peer-led discussions that bring people together

How It Works



SIGN UP

Faculty join as hosts, docents, or visitors.



VISIT A CLASS

Small groups observe teaching in context.



POST-CLASS DISCUSSION

Participants debrief, reflect, and ask questions.



EXTENDED DISCUSSION

Faculty share teaching scholarship and celebrate teaching awards.

PARTICIPANT FEEDBACK



100%

of surveyed faculty reported that TDD fostered a sense of community.

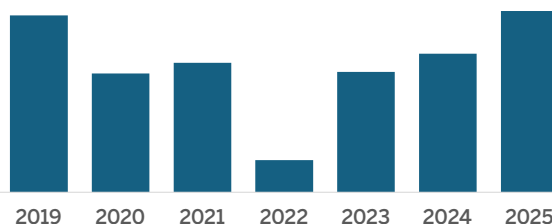


93%

said TDD was a valuable use of their time.

119

participants in 2025



CNS Expert Teaching Assessment Program

CETAP provides structured, formative peer assessment of teaching across CNS. Each consultation includes a pre-observation meeting, review of course materials, in-class observation, post-observation debrief, and a written report documenting evidence of excellence and providing actionable feedback. In 2025-2026, CETAP:

- Expanded its reach via a trained cohort of over 20 fellows,
- Offered second assessments for faculty pursuing promotion and tenure, and
- Delivered tailored professional development to five CNS departments.



CETAP By the Numbers



525
total reports
2017-2026



86 reports in
2024-25



136 reports in
2025-26

67%

of invited faculty
accepted an optional
second assessment
2025-26

“The most valuable feedback was methods for increasing interactivity in my classroom... The specific suggestions gave me concrete tools rather than just ‘do more active learning.’”

- CETAP Client



Building Community

Faculty participate in scholarly teaching networks that connect research, peer exchange, and classroom application to strengthen teaching and student outcomes.



Learning Lunches

One-hour faculty sessions that offer practical evidence-based teaching strategies and exposure to emerging tools that support learning. Programming has focused on technology in education, including AI use, student engagement, and classroom management strategies, with cross-campus presenters from the College of Education, McCombs, and the UT Office of Academic Technology.

From **2024 to 2026**, we hosted

10 Learning Lunches with a
total of **388** participants.



FEATURED TALK

A Spotlight on Our CNS Education Priorities
featuring Dean David Vanden Bout

Theme: AI in Education



Responsible Adoption of AI for Teaching and Learning



UT SAGE AI Tutors: AI Resources to Support Student Learning



Operationalizing GenAI in the Classroom



Obstacles, Faculty Challenges & Student Behaviors in the Age of GenAI

Theme: Student Support



Using technology to engage and assess students in class



Ways to structure discussions to increase participation and collaborative sense-making during lessons



Structuring classroom environments and building accessibility in science and lab courses

CNS Career Fellows

The CNS Career Fellows program engages faculty in embedding career readiness—skill development, career navigation, and community connection—directly into undergraduate courses. The inaugural cohort developed shareable course resources, gathered faculty and student input on current practices, and produced recommendations to guide broader implementation across the curriculum.

By the Numbers

210+

Survey responses from
CNS faculty

86%

of respondents view undergrad
courses as important sites for
career skill development.

16

Fellows in inaugural cohort
representing 16 different
units



Mindset Matters for Student Success, or MM4SS, promotes adoption and use of research-based learning mindset practices in courses and advising.

Participants chose targeted interventions such as conveying purpose of learning and growth mindset messaging routines, applied them in real teaching and advising contexts, and assessed student outcomes.

Developed in partnership with behavioral scientists and the Texas Interdisciplinary Plan (TIP), the program produces classroom-ready resources that support student engagement and persistence in high-expectation environments.



FROM PARTNERSHIP TO FELLOWSHIP



Cohort: 16 faculty and staff participants join a kickoff workshop May '24 and implement practices in Fall '24.



Shareout: Participants report out results in a December '24 meeting.



Assessment: Implementation evaluated via customized surveys



Direction: Share accessible practice descriptions for broad CNS adoption.

Fostering Innovation

Advancing teaching through faculty-led inquiry and applied use of emerging technologies to improve student learning.



AI in Education Catalyst Grant Program

The AI in Education Catalyst Grant Program was created to help faculty move from uncertainty to informed experimentation as AI tools rapidly entered higher education. As part of the university's Year of AI, STEMx supported instructors in testing practical, course-level applications of AI to improve teaching and learning. The program prioritized creativity, rapid implementation, and visible contributions to shared knowledge.

AI Goes to Class

The primary venue for dissemination was a session at the AI Live event, where faculty came together to share AI applications with a broad university audience. Awardees presented Lightning Talks and demonstrations showcasing AI tools and teaching strategies for peers across disciplines. The event positioned teaching innovation with AI as a visible, collaborative effort rather than isolated experimentation.

AI LIVE

From Grant Projects to Shared Resources

To extend the impact of the work beyond the event, grant recipients contributed to a collaboratively authored open educational resource. The resulting volume captures a range of tested approaches, practical use cases, and reflections on integrating AI into teaching. Developed across multiple disciplines, the book serves as a shareable record of early instructional innovation with AI and gives instructors concrete examples they can adapt for their own courses.

Enhancing STEM Higher Education with Artificial Intelligence: Experiences Using AI in Learning and Teaching

Edited by Kristen Procko, Eric Smith, and Kristin Patterson



16 PROJECTS

Funded across nine different disciplines in CNS



15 PRESENTATIONS

Lightning Talks and demonstrations at the UT-wide AI Live event.



NEW GUIDEBOOK

Created by 21 authors, including two undergraduate students

Pathways Grants

Pathways Grants support CNS faculty in developing and testing scalable, high-impact improvements to undergraduate teaching through three award types: Exploration & Assessment Awards for understanding instructional challenges, Dean's Teaching Fellowships for individual course innovation, and Collaborative Innovation Awards for cross-course or program-level improvements.

Pathways Conference

The annual Pathways Conference brings completed and in-progress projects into conversation, creating a forum for sharing instructional innovation and strengthening a community of practice.

In 2024-2026:

25

applications received
from 9 CNS departments

75%

of applications were
funded, totaling
\$198K

Example Projects



HELLO MAKER

Expands CNS's makerspace Hello Maker Studio by adding product design tools and creating training modules to increase access for all.



CHEM CONNECTIONS

Unifies lecture and lab resources in the general chemistry sequence through a validated test bank, career-readiness materials, and a student-facing learning hub.



FACULTY/ADVISOR COMMUNITY

Identifies shared goals, discusses relevant challenges, and develops strategies to better align and improve undergraduate experiences.

Scholarship Community

The Scholarship Community launched in spring 2026 to support emerging STEM education researchers. The program builds capacity for Discipline-Based Education Research and the Scholarship of Teaching and Learning through structured guidance, peer exchange, and project development support.

The core structure is a six-week series in which participants refine research questions, engage with relevant literature, plan data collection, and prepare for dissemination. The program supports progression from evidence-based teaching practice to data-informed, pedagogical scholarship.

Six-Week Program Sequence



01 LAUNCH

Education research primer



02 DEFINE

Frame inquiry, design study



03 ANALYZE

Data types in practice



04 SEARCH

Literature and dissemination



05 DISCUSS

Articles and project goals



06 PRESENT

Progress and next steps

Designing for Scale & Impact

We support the full lifecycle of course development, from early planning and instructional design to implementation, refinement, and long-term improvement.

Lifecycle of course development



Examples

- **Health Professions Pathways:** a three-course pre-health sequence bringing career exploration into the curriculum. 2,485 students · 3,411 enrollments.
- **CURE Biology Lab:** an introductory lab transformed into a course-based research experience. 1,500+ students annually.
- **Essentials of AI Course:** AI literacy course expanded to 3 credits, integrated into the UT core, and redesigned around ethics projects.
- **General Chemistry Lab:** one-credit lab courses enrolling 4000+ students per semester that introduce research methods in alignment with the lecture sequence.

What's Next for STEMx

Over the next two years, STEMx will continue helping CNS departments design, evaluate, and improve learning experiences that reach students at scale. Our work will focus on expanding high-throughput course and curriculum design support, strengthening teaching observation and feedback systems, using data from teaching assessments to inform professional development offerings, and building faculty communities around course-based educational scholarship.

Priorities Ahead



FORMALIZE COURSE & CURRICULUM DESIGN SUPPORT

Partner with departments to design and refine high-impact courses and degree plans.



STRENGTHEN TEACHING FEEDBACK SYSTEMS

Update assessment practices and data systems to make feedback consistent, actionable, and connected with professional development.



GROW TEACHING AND MENTORING PATHWAYS

Modernize foundational TA training and expand the Concentration in Teaching & Mentoring. Coordinate faculty and grad student development.



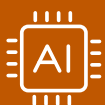
BRING INSTRUCTORS TOGETHER

Leverage faculty communities to incorporate student career outcomes and improve teaching.



SUPPORT EDUCATIONAL SCHOLARSHIP

Help CNS faculty turn course questions into evidence-based inquiry, assessment, and dissemination.



ADVANCE AI-INFORMED TEACHING

Help instructors design thoughtful, discipline-appropriate uses of AI that strengthen teaching and learning, ethical reasoning, and engagement.

Get Involved

Whether you are designing a new course, revising an existing one, or exploring new approaches to teaching and learning, STEMx can help you move your work from idea to implementation. Visit our website at www.stemx.cns.utexas.edu or contact us at stemx@cns.utexas.edu.