

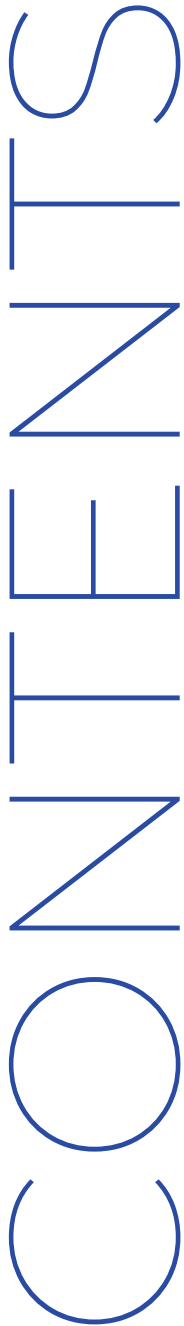


**STEM Teacher
Education Pathways**
Sonoma State University

STEM Teacher Education Pathways (STEP) Center Annual Report

2022-2023

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Who We Are

The Sonoma State STEM Teacher Education Pathways (STEP) Center was established in 2021 to expand and diversify the pool of highly prepared TK - 12 educators to teach and integrate science, technology, engineering, and mathematics (STEM) in classrooms across the North Bay and the surrounding region. We provide high-quality pathways and programs that support the teaching and learning of STEM through training, professional development, scholarships, and research.

The STEP Center is housed in the Sonoma State School of Education and led by Co-Directors Dr. Edward Lyon and Dr. Rajeev Virmani. The STEP Center collaborates with the Sonoma State School of Science & Technology, as well as school districts in the region.



STEP Center 2022-2023 Team (left to right):
Edward Lyon (Co-Director)
Rajeev Virmani (Co-Director)
Salvador Garcia Vigil (Recruitment Coordinator)
Angelica Andrews (Administrative Support Coordinator)

HIGHLIGHTS AND ACCOMPLISHMENTS

<p>Hired a new Administrative Support Coordinator (Angelica Andrews Buot) and a year-round Recruitment Coordinator (Dr. Salvador Garcia)</p>	<p>Partnered with Santa Rosa City Schools and Petaluma City Schools to develop and recruit for the new North Bay STEM Teacher Residency Program</p>
<p>Continued to partner with the Sonoma State MESA Program and support undergraduate STEM tutoring</p>	<p>Provided \$59,500 in Scholarships to math and science teacher candidates</p>
<p>Prepared 12 new math and science teachers</p>	<p>Re-established the Maker Education Certificate Program</p>
<p>Received a \$75,000 Funding Bonus from the CSU Chancellor's Office based upon increase in the number of math and science teacher candidates</p>	<p>Supported 25 teachers through the Foundational Level Math and General Science Preparation Institutes</p>
<p>Co-sponsored a daylong workshop on growth mindset in math with Santa Rosa City Co-sponsored a daylong workshop on growth mindset in math with Santa Rosa City Schools – led by Dr. Jo Boaler</p>	<p>Awarded the first Williamson Family Scholarship for Future STEM Teachers</p>

SCHOLARSHIPS AND STIPENDS

The STEP Center continued to fund the STEP Scholarship, which provided up to \$5,000 for every single subject math and science teacher candidate. **In 2022-2023, 12 candidates received the Scholarship for a total of \$57,500.** We also awarded one math candidate with a **\$2,000 STEP Bilingual Authorization Scholarship.**

01

Williamson Family Scholarship for Future STEM Teachers

The Williamson Family Scholarship for Future STEM Educators supports Sonoma State School of Science and Technology undergraduate students, from historically underrepresented communities, in becoming credentialed math or science teachers through the Sonoma State University's Single Subject Credential Program. The scholarship will be awarded to a minimum of 2-3 undergraduate students per year with an average award of between \$2500 and \$4750 per student. Selection will be determined by a committee composed of staff and faculty involved in the School of Education's STEM Teacher Education Pathways (STEP)

Erika Diaz Ramirez and Benito (Benny) Sanchez were the first-ever recipients of the Scholarship.

Williamson Family Scholarship Luncheon pictured above (left to right): Dean Wade, School of Science and Technology, Erika Diaz Ramirez, Dr. Cathy and Dr. Chuck Williamson, Benny Sanchez, and Dean Alamillo, School of Education.



02

Residency Program Stipends and Scholarships

Eight single-subject math and science teacher candidates completed the North Bay Residency Program and each received \$16,500 in stipends.

RECRUITING A DIVERSE POOL OF ASPIRING MATH, SCIENCE, AND COMPUTER SCIENCE TEACHERS

In 2022-2023, the STEP Center continued to recruit a diverse pool of aspiring math, science, and computer science teachers by (1) strengthening partnerships with the School of Science and Technology and TK-12 school districts, (2) hosting recruitment events, and (3) bolstering digital and social media.

We continued to contribute funding for Sonoma State's MESA Program. MESA students engage in "high impact" experiences, such as advising, undergraduate research, tutoring, mentoring, and leadership development. This academic community is what sets MESA apart from other programs. This academic community is a key pathway to recruit historically underrepresented science and technology students.

We also partnered with Santa Rosa City Schools and Petaluma City Schools to submit and receive a CTC Residency Capacity Grant. The North Bay STEM Teacher Residency Capacity Grant (2022-2027) allows us to develop, refine, and recruit aspiring teachers into an immersive clinical practice model where math and science teachers receive monthly stipends, expert mentorship, and additional professional learning experiences.

We held an array of in-person and virtual recruitment events, including (1) a Credential Program Info Session, (2) Presentations in targeted Undergraduate STEM Courses, (3) Presentations at both a Math and Physics Colloquia, (4) SSU President's Council on Teacher Education, and (5) Sonoma State Undergraduate Science & Technology Symposium.

Finally, we expanded the readership of a monthly newsletter "STEP up to Teaching" and expanded our presence on social media. We also produced two videos, currently available on the STEP Center Website and the School of Education YouTube Channel, to inspire future STEM teachers and provide details on admission requirements.

PARTNERSHIPS AND SUPPORTS FOR MATH AND SCIENCE TEACHER CANDIDATES

North Bay STEM Teacher Residency Program

The 2022-23 academic year was the final year of the North Bay Teacher Residency - STEM program, a collaborative initiative with the Napa Valley School District (NVUSD) and Santa Rosa City Schools (SRCS) funded through the CA Department of Education.

Sonoma State University's Teacher Residency Programs are committed to cultivating outstanding educators deeply rooted in our community, with a focus on promoting educational equity. This commitment is realized through a comprehensive, high-quality teacher residency program that incorporates expert, long-term mentoring, relevant coursework integrated into clinical practice, and mandatory professional development events for both resident and mentor teachers. In this final year, we had eight resident teachers and seven mentor teachers.

We have started a new residency partnership specifically focused on recruiting, preparing, and retaining STEM teachers with Santa Rosa City Schools and Petaluma City Schools. The North Bay STEM Teacher Residency Program (NBSTEM) is designed to build upon the successes of our previous residency program (NBTRP), aiming to augment the number of STEM teachers in the North Bay who authentically represent the critical identities of the students they will serve. NBSTEM has secured funding from the California Department of Education for the period spanning 2023-24 to 2025-26, operating as a collaborative effort across Santa Rosa City Schools, Petaluma City Schools, and Sonoma State. The STEP Center has additionally contributed funding for Residency Mentors.

Throughout this timeframe, our focus in teaching and mentorship will center on supporting emergent bilinguals by integrating biliteracy into math and science instruction. This integration will be facilitated through professional learning opportunities led by Sonoma State's Biliteracy and Content Area Integrated Preparation (BCAIP) Project.

Collaborative Learning Events

The STEP Center spearheaded four Collaborative Learning Events (CLEs) designed to bolster a professional learning community that included STEM teacher candidates, mentor teachers, and school/district leaders. These events were strategically focused on practicing essential STEM teaching practices. Our primary objective was to establish a common language across different communities and create a supportive space for STEM teacher candidates to engage in reflective teaching by approximating teaching and receiving coaching and feedback from multiple perspectives.

Within the framework of the CLEs, we cultivated a community of practice based on the belief that learning is most effective in social contexts that emerge and evolve as individuals with shared goals interact while working towards those objectives. Our specific focus was on "core teaching practices" geared towards facilitating the learning experience for a diverse student population and enhancing the preparation and mentorship of preservice teachers, particularly in fostering biliteracy among emergent bilinguals in content areas.



PROFESSIONAL GROWTH FOR IN-SERVICE TEACHERS

The STEP Center continued to run the Foundational Level Math (FLM) and the Foundational Level General Science (FLGS) Preparation Institutes so that current teachers can add a credential to teach middle school math or science, Algebra, Geometry, or general science. We opened the content-specific courses to aspiring teaching candidates who are in the process of meeting the subject matter competency requirement through CSET.

We also re-established our Maker Education Certificate Program, which welcomed its first cohort in Spring 2023. The program focuses on maker-centered learning pedagogies and practices where aspiring educators learn from expert maker educators how to integrate maker content within their teaching context and throughout their communities.

The Sonoma State STEP Center and Computer Science faculty partnered with San Francisco State, Sacramento State, and San Jose State to submit and receive the \$1,994,917 (\$345,000 SSU subaward) CS4All Grant, funded by the National Science Foundation (2023-2026). The project titled, CS4NorthCal: Scaling an Evidence-Based Model for Teacher Preparation and Support to Provide Equitable and Inclusive CS Education in California High Schools, will allow us to develop a Computer Science Supplemental Authorization Program. We anticipate that the first cohort will begin in Summer 2024.

2022-2023 Program Participants

Foundational Level Math
(FLM)

- 20 Participants

Foundational Level General
Science (FLGS)

- 5 Participants

Maker Education Certificate

- 14 Participants

PROFESSIONAL GROWTH FOR IN-SERVICE TEACHERS



On January 27th, 2023, the STEP Center co-sponsored a professional learning day for Santa Rosa City School teachers. The experience, led by Dr. Jo Boaler and Cathy Williams focused on supporting students in developing a positive identity and growth mindset in math.

2022-2023 STEP CENTER EXPENDITURES

Expense Area	Total Funds Used
Faculty	\$38,153.48
Staff + Benefits	\$35,803.75
Student Scholarships	\$98,589.00
Travel/ Conferences	\$2,745.85
Supplies/ Printing	\$3074.80
Events	\$1900.62
Contractual Services	\$3,000
Summer Institutes	\$25,491.00
Mesa Support	\$25,000.00
Total	\$233,758.50

Upcoming Goals and Priorities

Diversify the STEM Teacher Candidate Pool: Enhance recruitment of aspiring STEM teacher candidates of color by leveraging financial and mentoring support (Male Educators of Color, Residency, Bilingual Authorization) as well as dual-enrollment programs at the high school level. We are currently submitting a proposal for the CSU Vista Program for additional funding support.

Expand Professional Support for Current Teachers: To expand ways that North Bay teachers can be qualified to teach STEM-related fields (e.g., foundational level math and science credentials, maker certification, and computer science authorization) and work with emergent bilingual learners (e.g., BCAIP Grant, Bilingual Authorization). We are currently submitting proposals to develop and implement summer teacher institutes for elementary math and science teachers.

Increase Financial Stability: Secure additional funding sources for scholarships, mentoring candidates of color, program coordination, and recruitment coordination.

Thank you for taking the time to review our Annual Report. Please feel free to reach out with any questions or ideas.

We thank everyone who helped to ensure this year was a success and look forward to continued collaboration

CONTACT

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