

**Ancillary Unit Annual Report**

<b>Basic Information</b>	
<b>Ancillary Unit's name</b>	<b>Center for Enhancement of Mathematics Education</b>
<b>Director(s)</b>	<b>Kelli Wasserman, Department of Mathematics</b>
<b>Administrator to whom the unit reports</b>	<b>Dr. Sastry G. Pantula, Dean, College of Natural Sciences</b>
<b>Purpose and current goals (as approved by Faculty Senate)</b>	CEME's mission is to meet the challenges of high dropout rates, low academic achievement in mathematics, and under-credentialed mathematics teachers by addressing the continuum of mathematics education from kindergarten through college. Its primary focus is to develop and enhance strong content knowledge and pedagogical skills among preservice and inservice teachers. The ultimate goal is to improve readiness for college among students in the region, contributing to CSUSB Strategic Plan Goal 1 (Student Success). Contracts with K-12 districts and grants from state, federal and philanthropic agencies fund much of this work, contributing to Strategic Plan Goal 3 (Resource Sustainability and Expansion). Projects that form a basis for lasting partnerships with school districts and county offices of education contribute to Strategic Plan Goal 4 (Community Engagement and Partnerships).

<b>Advisory Board</b>	
<b>Member</b>	<b>Affiliation</b>
<b>Kelli Wasserman</b>	<b>Director, CEME Mathematics Faculty</b>
<b>Jeremy Aikin</b>	<b>Co-Director, CEME Associate Professor of Mathematics</b>
<b>Madeleine Jetter</b>	<b>Former Director, CEME Mathematics Department Chair</b>
<b>Davida Fischman</b>	<b>Former Director, CEME Emeritus Professor of Mathematics</b>
<b>Lynn Scow</b>	<b>Faculty Advisor, CEME Assistant Professor of Mathematics</b>
<b>Carol Cronk</b>	<b>Coordinator, Math &amp; Science Program VVUHSD</b>
<b>Lela Spearsharper</b>	<b>Program Specialist - Lead Teacher and Mentor, Teacher Induction Program, SBCUSD</b>
<b>Xinying Yin</b>	<b>Associate Professor, College of Education</b>
<b>Iris Riggs</b>	<b>Professor, College of Education</b>
<b>Shawnee McMurrin</b>	<b>Professor, Mathematics Department</b>

Corrine Johnson	Assistant Professor, Mathematics Department
David Polcyn	Professor, Biology Department

Activities during previous academic year (2020-2021)			
Activity (please describe)*	Funds spent**	Funding Sources	Goal advanced (and extent)
<p><b>CSET I Course: Algebra and Number Theory Institute</b>  CEME offers a 14 day (40 hours) course each year that focuses on increasing depth of content knowledge of the topics on the CSET I mathematics exam.</p>	\$5,598.31	MSTI	Advanced the goal of expanding the pool of qualified K-12 mathematics teachers in the region by building content knowledge to prepare mathematics teachers for the CSET I exam.
<p><b>CSET II Course: Geometry, Probability and Statistics</b>  CEME offers a 14 day (40 hours) course each year that focuses on increasing depth of content knowledge of the topics on the CSET II mathematics exam.</p>	\$2,245.67	MSTI	Advanced the goal of expanding the pool of qualified K-12 mathematics teachers in the region by building content knowledge to prepare mathematics teachers for the CSET II exam.
<p><b>Dinner and a Math Problem-Monthly Workshop</b>  Prior to the COVID-19 pandemic, CEME held a Dinner and a Math Problem event, which is one of the main activities of the Inland Empire Math Teachers' Circle. Dinner is provided, and CSUSB students and K-12 teachers spend 3 hours solving a math problem that is accessible and yet challenging to all. One main draw of this event is that it is an opportunity to network with other educators. Since it was difficult to re-create this opportunity virtually, this event was put on hold during the pandemic. Dinner and a Math Problem events resumed when in person instruction was resumed.</p>	\$0		The goal of this activity is to build a broad network of math educators in the region who grow together in their ability to facilitate productive problem solving amongst their students. This event has grown in popularity since 2015 and has become a staple math education event in our region. On average, 20 teachers attend.

<p><b>The Early Teaching Experiences in Mathematics and Science (ETEMS) Internship:</b></p> <p>This program targets students who are interested in exploring the idea of teaching K-12 math or science. Our CSUSB ETEMS interns are grouped into small cohorts. Each cohort is supported by faculty mentors, and meets weekly to discuss research about content and pedagogy. Interns are also required to complete between 10-15 hours of classroom observations in local schools. (This number was reduced from last year due to strict district policies restricting visitors from local school sites due to COVID.) Each cohort works to develop a Common Core or NGSS based lesson, which they then implement in a local classroom.</p>	<p><b>\$67,000</b></p>	<p>MSTI, Edison International Foundation, A4US DOE grant</p>	<p>From the inception of the program through June 2021, there have been a total of 53 students who have participated in the ETEMS program. The breakdown of majors is: 43% mathematics, 19% biology, 11% computer science, 9% liberal studies, 8% chemistry, 6% physics, and 4% geology. The primary goal of the program is to recruit math and science teachers for local high-needs school districts (Goal 4). Of the students who have participated in the program so far, 56% identified as being <i>extremely sure</i> they will enter the teaching profession, with a total of 87% identifying as being at least <i>moderately sure</i>. Approximately 60% of these students reported that they had thought extremely carefully about a career in teaching. There is currently a tremendous need for highly qualified math and science teachers in our region. We consider the program to be a success both when the experience helps students decide to become teachers, and when it helps students decide a teaching career is not for them.</p>
<p><b>Noyce Scholars in Mathematics and Science Phase III:</b></p> <p>Emphasis on building mathematical content knowledge and pedagogy in pre-service math and science teachers. Scholars are CSUSB math and science majors and are future secondary teachers. Through hands-on and intensive teaching experiences and a partnership with SBCUSD, the district is provided with highly qualified math and science teachers to fill the shortage.</p>	<p><b>\$136,739.55</b></p>	<p>Noyce - NSF Grant MSTI</p>	<p>The academic year 2020-2021 was the third year in this 5-year \$1.2 million NSF grant. We have exceeded our overall recruitment goal, as we have had 24 math and science majors participating in the Noyce program to date. Of these students, 7 are currently teaching in SBCUSD and the remaining are working in the program this year. Phase III of the grant has new areas of focus that include an increase in recruitment of science majors to fill the shortage of science teachers in our region, as well as additional support for district mentor teachers in the area of mentoring new teachers; particularly subject specific mentoring. To this end, we have broader collaboration with science faculty at CSUSB and</p>

			recruitment of science students (4 of the 14 students currently in the program are in science), and we have broadened our network of and support systems for mentor teachers in the SBCUSD.
<p><b>VV-MATHS Program (Victor Valley Math and Teaching Scholars)</b>  Modeled after our current Noyce program. Emphasis on building mathematical content knowledge and pedagogical content knowledge in pre-service math teachers. Scholars are CSUSB math and liberal studies majors who are future middle and high school teachers. Through hands-on and intensive teaching experiences and a partnership with VVUHSD, our students get an immersive teacher development experience and the district is provided with highly qualified math teachers to fill the teacher shortage.</p>	\$0	OTF & ESSER	The OTF grant is a two year grant awarded to begin in the 2020-2021 academic year to create a “mini-Noyce” program with a new district. The goal for 2020-21 was to plan the components of the program and establish a partnership in a new district (Goal 4). The partnership with Victor Valley Union High School District was established, and both mentor teachers and student scholars were recruited to participate in the program. Additionally, the ESSER proposal was submitted and accepted in the Spring of 2020 as a 1 year (2021-2022) supplement to the OTF grant.
<p><b>Mathematics Department Peer Tutoring Center (Math Gym)</b>  The Math Peer Tutoring Center recruits and employs high achieving upper-level mathematics majors and graduate students to be peer tutors. Students visit the center from a large variety of mathematics classes and deepen their understanding of the content.</p>	\$34,775.88	MSTI	The Math Gym exists to support student success (Goal 1). During 2020-21, each semester the peer tutoring center employed 6 upper-level mathematics majors and mathematics M.A. students as tutors. The center was visited virtually by hundreds of students each semester (during 2020-21, we switched to online tutoring due to COVID-19) and ran virtual study marathons the Saturday and Sunday before finals week during Fall 2020 and the Saturday before finals week during Spring 2021. The study marathons were organized by the CSUSB Math Club. During 2020-21, the events had significantly lower attendance than prior years due to COVID-19 and virtual mode.
<b>Summer Workshops</b>			These workshops were planned to advance our goal of developing and

<p>Two summer workshops were planned and advertised:  <i>Coming Together, Moving Forward (TK-5)</i> and <i>Preparing for What Comes Next (6-12)</i></p> <p>Both workshops intended to build on what was learned after a year of distance learning, and how to fill gaps left by such an extraordinary year. Unfortunately, both workshops were cancelled due to low enrollment. Facilitator planning time was compensated.</p>	<p><b>\$1067.70</b></p>	<p>ICMP</p>	<p>enhancing strong content knowledge and pedagogical skills among preservice and inservice teachers. (Goal 4)</p>
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**\*Annual evaluator reports for externally funded CEME programs are available upon request.**

**\*\*While we provide our best estimate of the funds spent for each activity, not all expenses associated with a specific activity can be isolated because the relationship between funding sources and activities is not one-to-one. For example, staff time charged to CEME’s Inland Counties Math Project (ICMP) grant contribute to multiple ICMP activities (Dinner and a Math Problem, CSET Workshops, Summer Institutes) and it would be a burden on staff to separately track their hours for every individual ICMP-funded activity.**

Use of funds				
	Internal funds		External funds	
	Previous academic year	Current academic year (projected)	Previous academic year	Current academic year (projected)
A. Salaries	\$ -	\$ -	\$ 140,341	\$ 123,039
B. Assigned time	\$ -	\$ -	\$ 6,615	\$ 18,700
C. Telephone/fax	\$ -	\$ -	\$ 912	\$ 912
D. Office supplies	\$ -	\$ -	\$ 7,350	\$ 7,843
E. Other	\$ -	\$ -	\$ 220,513	\$ 309,999
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 375,732</b>	<b>\$ 460,493</b>
<i>On a separate sheet, please itemize A., B., and E.</i>				

Internal Funds		External Funds	

	<i>Previous academic year</i>	<i>Current academic year (projected)</i>	<i>Previous academic year</i>	<i>Current academic year (projected)</i>
<b>A. Salaries</b>				
<i>Student Assistant</i>	\$ -	\$ -	\$ -	\$ 8,235
<i>StuAsst-Instructional SA (ISA)</i>	\$ -	\$ -	\$ 32,713	\$ -
<i>SupStaffSal-Salaries</i>	\$ -	\$ -	\$ 64,920	\$ 93,806
<i>AcadSal-Consultant-Faculty</i>	\$ -	\$ -	\$ 25,870	\$ 2,750
<i>SupStaffSal-Vacation Accrual</i>	\$ -	\$ -	\$ 1,600	\$ -
<i>Benefits</i>	\$ -	\$ -	\$ 15,237	\$ 18,248
<b>Total</b>	\$ -	\$ -	\$ 140,341	\$ 123,039
<b>B. Assigned Time</b>				
<i>AcadSal-Release Time</i>	\$ -	\$ -	\$ 5,000	\$ 18,200
<i>Benefit-Release Time</i>	\$ -	\$ -	\$ 1,615	\$ 500
<b>Total</b>	\$ -	\$ -	\$ 6,615	\$ 18,700
<b>E. Other</b>				
<i>Contract Services</i>	\$ -	\$ -	\$ 38,565	\$ 43,130
<i>Subrecipient for grants</i>	\$ -	\$ -	\$ 35,191	\$ 0
<i>Participant Support</i>	\$ -	\$ -	\$ 93,462	\$ 199,550
<i>Travel</i>	\$ -	\$ -	\$ -	\$ 17,079
<i>Meeting Expenses</i>	\$ -	\$ -	\$ 27,413	\$ 7,843
<i>Transfers-FND btl</i>	\$ (3,353)	\$ -	\$ -	\$ -
<i>FDN Indirect Cost-Federal/State/Other</i>	\$ -	\$ -	\$ 34,146	\$ 48,152
<i>Admin Costs-5%GiftFee</i>	\$ -	\$ -	\$ -	\$ -
<b>Total</b>	\$ (3,353)	\$ -	\$ 228,776	\$ 318,754

### Activities planned for the current year (2021-22)

1. The Inland Counties Mathematics Project will continue to plan and implement professional development institutes; maintain and establish partnerships with schools, districts, and counties; and provide innovative mathematics curriculum for secondary schools. We are currently surveying CEME stakeholders to help determine the topic of ICMP's annual June workshop.

**2.** The Noyce Scholarships Project Phase III will continue working with Noyce Scholars and mentor teachers: offering virtual monthly seminars on teaching for Scholars and Mentor teachers, as well as ongoing mentoring through class observations, instructional rounds, student teaching, and academic advising. We will continue strengthening coordination and collaboration between the natural sciences faculty and education faculty. In addition, we will continue to provide mentor teachers with professional development and ongoing support to enhance their positive impact on scholars and to support their transition to teaching Common Core State Standards—Mathematics and Next Generation Science Standards.

We currently have 14 mentor teachers and 14 scholars active in the program. The project includes the following main components for Scholars:

- Financial assistance of up to \$10,000/year to each Scholar for up to three years
- Observations and debriefing with a mentor teacher for each Scholar
- Participation in monthly seminars on teaching mathematics and science
- Participation in instructional rounds in SBCUSD classrooms
- Professional development around content-specific pedagogies and working with the diverse student population in San Bernardino.

**3.** MSTI-TRP projects: MSTI-TRP funds are meant to support increased numbers of credentialed teachers in mathematics and science. Some of these funds will continue to be used to support the Mathematics Peer Tutoring Center (also known as Math Gym) in which upper division math majors and graduate students tutor lower division and beginning upper division math majors in major subjects. Additionally, funds will continue to be used to support mathematics and science majors in the Early Teaching Experiences in Mathematics and Science (ETEMS) scholarship described above. MSTI funds are also partially used for two CSET Content Institutes (40-hour per subtest) offered through the CSUSB Center for Enhancement of Mathematics Education and the Inland Counties Mathematics Project. In addition, we have allocated 2021-2022 funds to:

- Support students in the new VV-MATHs program
- Support a tutoring program in computer science
- Support the development of a Computer Science Supplemental Authorization program, in order to increase the number of qualified K-12 Computer Science teachers and improve schools' capacity to deliver four years of quantitative reasoning coursework to all students
- Support learning assistants and tutors in physics

**4.** The VV-MATHs program is underway in the Victor Valley Union High School District. We are hopeful that this is the beginning of a long partnership. With the supplement of the ESSER funds, we have been able to expand the program for district mentor teachers. We recruited 8 mentor teachers, (which is more than our number of scholars), with the intention that mentors without scholars could participate in grant funded activities as part of a mentor-training program. All mentor teachers had the opportunity to participate in a cycle of lesson study, where they collaborated in planning and implementing a very detailed lesson plan. We felt this was important for preparing them to support scholars in lesson planning. Additionally, they will receive professional development in content and pedagogy for math instruction. Mentor teachers are compensated for their time spent outside the classroom, including attending monthly seminars and/or working with their scholars.

We also have 4 scholars active in the program. The project includes the following main components for Scholars:

- Financial assistance of up to \$10,000 for the year
- Observations and debriefing with a mentor teacher for each Scholar
- Participation in monthly seminars on teaching mathematics and classroom management

5. In Spring 2020, we began to hear from multiple districts seeking support for inservice teachers. We have established a contract with Bear Valley Unified School District to provide support for three Lesson Study teams that began in Summer 2020 and has continued into the 2020-21 academic year. We have established two contracts with Redlands Unified School District to provide content intensive training for a cohort of 6th grade teachers and a cohort of 4th & 5th grade teachers. This work also began over the summer and has continued into the school year. However, districts have been challenged with limited availability of substitute teachers. This had led to the postponement of many scheduled professional development sessions. Both districts have expressed interest in continuing this work, either in the summer or the next academic year.


6. With the challenges associated with the COVID pandemic and distance learning, our usual monthly Dinner and a Math Problem workshops on campus were put on hold during the 2020-21 academic year. While we created a Slack virtual workspace, in which many regional teachers joined and utilized as a networking and communication platform, it was difficult to create a similar networking and problem solving experience for our participants in the virtual platform. We began planning to resume problem-solving workshops in person again over the summer, and began hosting them in the Faculty Center for Excellence in September 2020.

7. CEME is tentatively planning to host one summer workshop in Summer 2022. Last summer, two workshops were planned, but both were cancelled due to low enrollment. It is suspected that low enrollment was due to more districts hosting summer school courses for students who have fallen behind, leaving potential participants unavailable; or teacher burnout may have been a factor due to an arduous school year. CEME will investigate district plans to run summer school in surrounding districts to try to target favorable dates for a workshop.

8. We are consistently working to maintain the CEME office's capacity to support new and existing projects in a sustainable fashion. While our Office Specialist III, Tawney Hall, joined CEME staff In January 2020, we delayed hiring additional staff until we were allowed to return to campus. Nathan Wilson, a Mathematics M.A. student and T.A. joined our staff in August 2020, as our new student assistant. Currently, our biggest challenge is finding enough facilitators for the scheduled work. We are trying to expand our pool of facilitators and/or plan to hire additional staff members, as needed to maintain appropriate support for both our UEC and State funded projects.

  
Kelly Wasserman (Dec 3, 2021 14:56 PST)

**Director Signature**

  
Jeremy Aikin (Dec 3, 2021 15:35 PST)

**(Co-)Director Signature**



**Unit Reporting Person recommendation**

**Name and title:**

Sastry Pantula

Dean, College of Natural Sciences



Keep on active status.

Move to probationary status.

Move to inactive status.

**Recommendations and comments:**

**Keep up the excellent work!**

*Sastry G. Pantula*

**Dec 3, 2021**

Unit Reporting Person Signature

Date

**Educational Policy and Resources Committee recommendation (Only after 3 or 5 year review)**

Keep on active status.

Move to probationary status.

Move to inactive status.

**Recommendations and comments:**

EPRC Chair Signature

Date

**Provost recommendation (Only after 3 or 5 year review)**

Keep on active status.

	<b>Move to probationary status.</b>
	<b>Move to inactive status.</b>
<b>Recommendations and comments:</b>	

\_\_\_\_\_  
**Provost Signature**

\_\_\_\_\_  
**Date**

<b>President decision (Only after 3 or 5 year review)</b>	
	<b>Keep on active status.</b>
	<b>Move to probationary status.</b>
	<b>Move to inactive status.</b>
<b>Recommendations and comments:</b>	

\_\_\_\_\_  
**President Signature**

\_\_\_\_\_  
**Date**