



Greetings from STEM@SVSU

Happy fall — We hope you've had a successful start to the new academic year!

STEM@SVSU was very busy this summer with the Dow STEM Camps, Chief Science Officers Leadership Training Institute, SMEKplus camps, and many more outreach activities. The Great Lakes Bay Region was fortunate to host the National STEM Learning Ecosystems Community of Practice Convening in Bay City and STEM@SVSU participated in a variety of ways, including hosting two sessions on campus for visitors to the region.

Like the leaves changing outside, STEM@SVSU continues to change and adapt to meet the needs of K-12 students and educators, as well as our partners across campus and throughout the community. One of those changes is with the SVSU Mobile Research Lab. Moving forward, it will focus on undergraduate water quality research, as well as project-based

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interactions with citizen science and high school science groups.

Many of our fall programs are already underway. The Chief Science Officers recently visited Michigan Sugar for their fall cabinet meeting and STEM Star nominations will open soon. We are proud to partner with Nexteer Automotive, the Great Lakes Bay Manufacturing Association and the Girl Scouts Heart of Michigan office to offer a new Automotive Engineering Badge Fest in November!

Visit our website svsu.edu/stem, Facebook, and Instagram pages for the most updated information and opportunities available. As always, please contact us with any of your STEM support needs. We wish you all the best this school year!

Keep in touch with STEM@SVSU on social media!



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Updates from the SVSU Regional Mathematics and Science Center



Dr. Tamara Barrientos

There are changes ahead for the SVSU Regional Mathematics and Science Center (MSC). After 25 years of service, Dr. Tamara Barrientos, director of the MSC, is leaving SVSU. During her time at SVSU, Dr. Barrientos made an incredible contribution to STEM education in the region and touched so many lives. Her grant-funded programs through the SVSU Regional Mathematics and Science Center totaled over \$3 million and included Engineering is Elementary (EiE), Achieving with Intel Math (AIM), Great Lakes Bay Region Mathematics Specialist Program, and Supporting the Implementation of Intel Math (SI2M), along with many others. Dr. Barrientos' name is synonymous with STEM teacher professional development and out-of-school-time student programming, such as SMEKplus camps.

Please be patient with us as we navigate these changes in the STEM Center. It is our intention to continue with current programming such as SMEKplus camps and the Dow High School STEM camps. Please watch our website and Facebook page for updates as they are available.

We wish Tammy all the best — she will be greatly missed!

Updates from the MiSTEM Network



The State MiSTEM Advisory Council released its annual priorities and strategies for 2022-2023. Strategies focus on problem, project and place-based (3P) instruction opportunities, creating STEM partnerships between business, community and education, and building equitable, inclusive change by investing STEM resources and opportunities in places with demonstrated need. Regional and Advisory Council grant funds continue to focus on these priorities through regional activities and STEMworks programs including Math Recovery, CODE.ORG, Bootstrap, Modeling and Camp Invention.

Highlights for the 2021-2022 year include supporting the Chief Science Officers Program, educator mini-grants, Computer Science Professional Learning Network, Student Scholarships for Michigan Tech Engineering Camp, STEM Stars, and science curriculum support.

For more information on these and other MiSTEM initiatives, please contact:

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MiSTEM is funded under a grant awarded by the Michigan Department of Education.

Girl Scout Automotive Engineering Badge Fest



Calling all Daisy, Brownie and Junior Girl Scouts! Register now through the Girl Scout Heart of Michigan Office for the Automotive Engineering Badge Fest at SVSU, taking place on Saturday Nov. 12 from 9 a.m. – 12 p.m. Explore the engineering design process, learn about simple machines, create and test prototypes, and manufacture your own set of vehicles. Thanks to Nexteer, Girl Scouts Heart of Michigan and the Great Lakes Bay Manufacturing Association for partnering with us on this event!

STEM Stars

STEM@SVSU is excited to partner with MiSTEM, East Central Michigan Region again this year to recognize STEM Stars from the Great Lakes Bay Region (Arenac, Bay, Clare, Gladwin, Gratiot, Isabella, Midland Saginaw counties). A STEM Star may be a K-12 classroom teacher, robotics coach, STEM Coordinator, or someone else in your district/ISD who makes incredible contributions to STEM education. A district may nominate more than one individual; however, priority will be given to nominees who are not previous recipients of the award. All nominations will be reviewed by a committee, and those selected will receive a \$250 award to enhance STEM education in their classroom or program, as well as a 3D printed keepsake.

2022 STEM Star Awards
FEBRUARY 22, 2022 | SVSU STEM EDUCATOR DINNER

STEM Stars were funded by MiSTEM, East Central Michigan Region

Additional 2022 STEM Star Award Recipients
Jennifer Courtright
Jodi Decuf
Andy Frisch
Deb Kanine
Ashley Morgan
Tracy Stoldt

SV SU SAGINAW VALLEY STATE UNIVERSITY
svsu.edu/stem

The nomination link will be posted on our website svsu.edu/stem on Tuesday, Nov. 8; all nominations are due by Thursday, Dec. 15. Awardees and nominators will be notified via email by Friday, Jan. 13, 2023. We can't wait to read about all the STEM Stars in our region this fall!

(cont.)

STEM Learning Ecosystems Community of Practice Convening



STEM@SVSU was pleased to be an active participant in the National STEM Learning Ecosystems Community of Practice Convening, held in June in Bay City. Over 500 ecosystem leaders, K-12 educators, post-secondary educators and business leaders attended the convening, which focused on “People, Planet, and Prosperity.” Saginaw Valley State University hosted two field trips for participants, including a session focused on building meaningful connections across disciplines and demographics to create enriching experiences for all levels of learners. Attendees discovered how STEM@SVSU connects with community partners to implement STEM outreach programs in engineering, environmental science, STEAM with the Marshall M. Fredericks Sculpture Museum, and the Chief Science Officers.

The second session at SVSU specifically involved the Chief Science Officers (CSOs), middle and high school students who attended the conference. CSOs and CSO alumni from Arizona, Canada, Georgia, Mexico, Michigan, North Carolina and Pennsylvania contributed their student voice to conversations throughout the convening and participated in team building activities at SVSU, such as the STEMazing Race around campus and a workshop focused on self-care and shifting mindsets. We are so fortunate to be a partner in the Great Lakes Bay Region STEM Ecosystem.

Diving Deep into STEM

Students at the Houghton-Jones Neighborhood Association in Saginaw participated in SVSU's Diving Deep into STEM Camp this summer.

Participants connected STEM concepts with literacy and explored buoyancy and density while creating rescue boats for toy bears. They also learned about the engineering design process and worked with engineers from Nexteer, Corteva, Dow, Hemlock Semiconductor and SVSU. Finally, students visited SVSU for a tour and activities. These students experienced campus life, explored the Marshall M. Fredericks museum, and toured the SVSU greenhouse.

Thanks so much to the Great Lakes Bay Regional Alliance for supporting this program through the Out of School Time Network!



Science and Mathematics Extravaganza for Kids (SMEKplus)



The SVSU Regional Mathematics and Science Center hosted our SMEKplus (Science and Math Extravaganza for Kids) camp this past July. Thirty-three students in 2nd – 4th grades participated in the SMEK Jr. camp and completed activities under the theme of Survival. Students worked together to build a shelter that would be able to withstand different simulated weather experiences, including rain, snow and wind tests. Students learned water safety and why things float and then were able to make their own clay boat that was able to float. They also made their own thermometers using rubbing alcohol and made bucket towers to save animals from a potential flood in the jungle.

SMEK Sr., which is for students going into 5th - 8th grade, also welcomed thirty-three students on campus. In one of the sessions, students learned about the three M's of engineering: Matter, Machines and Motion. Students learned about matter by completing the “walk on water” challenge using a non-Newtonian fluid “oobleck.” In learning about machines, students worked together to build a catapult that would not only launch an object the farthest but also the most accurately. During the motion sessions, students explored the engineering design process by building and testing a variety of rockets, including Alka-Seltzer rockets and stomp rockets. Students also used ratios to blow up a picture to five times its original size, and they determined the best paper airplane design based on time and distance data collected during flight trials. We look forward to continuing the SMEK camp tradition next year!

Herbert H. and Grace A. Dow Foundation STEM Scholars Network Cybersecurity Camp

Led by Dr. George Corser, assistant professor of computer science and information systems at SVSU, the Cybersecurity camp introduced 11 high school students to a wide variety of concepts. Students learned how to program computers, set up a virtual reality game, build a small robot, and explored the different components to a computer tower.

Participating Students:

Carson Warren, Public School Academy; *Claire Neumann*, Lutheran Schools - Missouri Synod; *Katrina Anderson*, *Sahiba Kaur* and *Dylan Norris*, Midland Public Schools; *Akhilesh Kanmanthreddy*, *Armaan Mahajan* and *Saiyan Tabrej*, Saginaw Public Schools; *Kushaan Chalasani*, *Ayaan Cheema* and *Christian Harris*, Saginaw Township Community Schools.



A sweet start to this year's Chief Science Officers Program

Chief Science Officers (CSOs) are middle and high school students who act as STEM leaders in their schools and communities. Our local cabinet of CSOs has over 80 students participating this year, representing over 18,000 of their peers from 30 schools and 14 districts throughout Bay, Midland and Saginaw counties. CSOs and their advisers attended a Leadership Training Institute at SVSU in August and were able to develop their STEM action plans, share their elevator pitches, network and brainstorm for the upcoming year with other CSOs, and hear from CSO alumni! Teams also participated in the STEMazing Race across campus and interacted with over 30 STEM professionals from the Chippewa Nature Center, Covenant Healthcare, Delta College, Dow, the Great Lakes Bay Regional Alliance, Hemlock Semiconductor, Nexteer Automotive, the Saginaw Children's Zoo, SC Johnson and SVSU. The CSOs and advisers learned so much about STEM career pathways and opportunities in our region! The students also shared their own STEM demonstrations with their peers, parents and community members. These "STEMonstrations" allow CSOs to practice presenting simple STEM activities and the STEM concepts involved. The Leadership Training Institute was facilitated by the GLBR CSO Leadership Council. These students are also improving the GLBR CSO social media presence and planning a Teen Science Café for later this fall.

CSOs had a "sweet" fall cabinet meeting at Michigan Sugar in Bay City; students and advisers experienced a Field Harvest Tour to learn how beets are planted and harvested, a factory tour to discover how beets are processed into different types of sugars, and learned about agricultural career opportunities. In addition, CSOs are hard at work on their STEM action plans, carrying on the tradition of Flight Night in Midland, planning STEM career panels for their peers, implementing elementary STEM outreach events, and more. Our GLBR CSOs are also collaborating with other students and professionals around the world through International CSO Town Hall Meetings, additional leadership training



opportunities, and virtual festivals.

The 2022-2023 Chief Science Officers Program is sponsored by Dow, Hemlock Semiconductor, IBEW Local 557 (International Brotherhood of Electrical Workers), Michigan Works, MISTEM Network East Central Michigan Region, Morley, Nexteer Automotive and Saginaw Valley State University.

Follow us on Facebook @GLBRCSOs, Instagram @glbr_cso, and TikTok @GLBR_CSO

Participating School Districts:

Bangor Township Schools, Bay City Public Schools, Bridgeport-Spaulling Community School District, Carrollton Public Schools, Diocese of Saginaw (Nouvel Catholic Central Middle and High Schools), Essexville-Hampton Public Schools, Frankenmuth School District, Freeland Community School District, Hemlock Public School District, Midland Public Schools, Lutheran Schools - Missouri Synod (Valley Lutheran High School, Bethlehem Lutheran School, and St. John's Lutheran School), Saginaw Public Schools, Saginaw Township Community Schools, and Swan Valley School District.

STEM Student Spotlight: Ashley Hoffman

Ashley Hoffman is a sophomore at SVSU, majoring in chemistry with a minor in mathematics. While she was a student at Valley Lutheran High School, Ashley participated in various activities such as the STEM Club, Key Club, National Honor Society, and many others. Due to her strong leadership qualities, she was a Chief Science Officer (CSO) in the Great Lakes Bay Region and is a passionate advocate for STEM. Ashley received the AP Scholar with Honor Award and the Michigan Seal of Biliteracy in Spanish. Aside from her academics, she gives back to her community by working as a summer camp counselor and teacher's assistant for Greater Midland Community Center, and she volunteers at the Midland Recycling Center and with her church.

What are your interests (in and out of the STEM fields)?

Throughout high school, my interest in STEM grew as I became more exposed to the different areas of science and math. I developed a love and passion for science, and an interest in higher levels of mathematics to solve problems that our world faces today.

Among all my science classes, I fell in love with chemistry because it was the first time I had answers to my "why" questions. I saw chemistry not just as a high school subject, but as something that ran through the fabric of everything we do every day. I learned to appreciate the world on a macroscale, such as the synthesis of medicine, food or biomolecules, while learning about the underlying principles occurring on a molecular level. I am very open to other unique opportunities that I may have not discovered. I think that each experience, whether it be something to seriously pursue or just admire, can truly shape a person's perspective. I may not like every opportunity that I experience, but most of them have changed my perspective in an eye-opening way.

What are the highlights of your current (or past) STEM experiences?

Definitely a highlight was being a Chief Science Officer (CSO) at Valley Lutheran. I also had an opportunity to work with my teacher and adviser, Mr. Cooper, to construct and maintain a hydroponics system for the school. At SVSU, I've had incredible learning experiences working with Dr. Warhausen on his research into the removal of aqueous metal ions. I am dedicated to my education and part-time jobs as an SVSU student employee and enjoy my experience as a college co-op at Dow in Core R&D.

What should local K-12 educators share with their students about opportunities in STEM studies at SVSU?

The student - professor ratio is a huge benefit in STEM-related classes at SVSU. Being able to connect with your professor is a great way for students to have amazing experiences in their coursework. Additionally, SVSU has many student resources including the tutoring center, library, and the accessibility and accommodation office. All of these have been especially helpful to me over the past two years.

Why did you decide to attend SVSU and pursue a STEM-related major?

Through multiple experiences like STEM camps and the Chief Science Officers (CSO) program, SVSU has given me a platform to demonstrate my leadership skills and to become more confident and creative in sharing my ideas with others. Through the CSO program, I had the opportunity to meet with some of the professors in the College of Science, Engineering and Technology and take a tour of the campus, with which I fell in love. I felt so welcomed by SVSU and the Chemistry Department that I knew I wanted to be a part of it. I am constantly learning new things and am surrounded by an amazing group of people willing to support me.

Mark Your Calendars for Upcoming STEM Events:

- **Girl Scout Automotive Engineering Badge Fest**
November 12 svsu.edu/stem/k-12studentsandparents/elementaryschoolprograms/
- **STEM Stars**
Applications open November 8 and are due December 15 svsu.edu/stem/k-12teachersstemstars/
- **SVSU STEM Teacher Dinner**
2023 date to be announced. Watch our website and follow us on social media for more information. Stay tuned! svsu.edu/stem/k-12teachers/



SVSU will provide reasonable accommodations for those persons with disabilities. Individuals who wish to make accommodations should contact the Conference Center at SVSU at (989) 964-4348 at least three days prior. SVSU does not discriminate based on race, religion, color, gender, sexual orientation, national origin, age, physical impairment, disability or veteran status in the provision of education, employment and other services.