

# Precollege Programs: Advancing the goals of OSU's SP 4.0

Precollege Programs, as part of Enrollment Management, provides initial college connections for Oregon's K-12 youth. OSU's financial commitment allows Precollege Programs to leverage additional support and develop partnerships and programs across the state.

We advance the four goals of the strategic plan:

- Preeminence in research, scholarship and innovation
- Transformative education that is accessible to all learners
- Significant and visible impact in Oregon and beyond
- A culture of belonging, collaboration and innovation



## Precollege Programs Contributes to OSU's Signature Area through Innovation in Education, Inclusion and Collaboration

| PCP/SMILE                      | Sponsor | Partner | PI             | Amt to PCP  | Total award   | Period       |
|--------------------------------|---------|---------|----------------|-------------|---------------|--------------|
| Regional Class Research Vessel | NSF     | CEOAS   | Bailey/Reimers | \$256,658   | \$209 million | 7/17 - 9/23  |
| Bioenergy                      | USDA    | CAS     | Field          | \$1,151,902 | \$4.9 million | 6/11 - 8/17  |
| Genetically Modified Organisms | NSF     | COF     | Strauss        | \$118,000   | \$4.0 million | 1/17 - 12/21 |
| Ocean Acidification            | NSF     | COS     | Giovannoni     | \$43,245    | \$1,511,821   | 9/16 - 8/20  |
| Ice flow                       | NSF     | CEOAS   | Hutchings      | \$19,215    | \$353,917     | 10/17 - 9/22 |
| Ecology                        | NSF     | COS     | Novak          | \$57,990    | \$490,000     | 6/14 - 5/18  |
| Siletz River                   | NSF     | COF     | Segura         | \$28,826    | \$411,897     | 7/16 - 8/20  |
| Plant Gene Regulation          | NSF     | CAS     | Megraw         | \$14,678    | \$565,330     | 9/18-9/23    |



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# OSU STRATEGIC PLAN 4.0: GOAL 1

## PREEMINENCE IN RESEARCH, SCHOLARSHIP AND INNOVATION

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### **Precollege Programs contributes with:**

Broader impacts and outreach support, and programming for faculty as part of their grant proposals through:

- Translation of research and scholarship into curriculum and activities that are accessible to K-12 communities and beyond.
- Mentoring and professional development for the next generation of scholars: graduates, undergraduates and K-12 students.

Research through collaboration with faculty and graduate students from all 11 colleges and centers (Hatfield Marine Science Center, Oregon Sea Grant, Oregon Space Grant, Center for Research on Lifelong STEM Learning, Environmental Health Sciences Center, OSU Ship Operations and the HJ Andrews Experimental Forest Long-term Ecological Research Site):

- Provide opportunities for faculty to share their research and inspire K-12 students to pursue careers in their fields.
- Translate and share faculty research through innovative and creative activities for K-12 youth, teachers, families and communities throughout Oregon.

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“STEM outreach activities are becoming an integral part of Federal funding for basic research. STEM Academy increases faculty competitiveness for grant funds by providing a STEM camp management structure that is already established and ready-to-go, yet flexible in terms of content and delivery of faculty-led programming... as a result have contributed to our success in securing Federal research funding.”

— Jeff Anderson, Assistant Professor,  
Botany & Plant Pathology

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“The SMILE Program has been instrumental in maximizing outreach possibilities connected to the Regional Class Research Vessel Program. Students eagerly participate in SMILE activities such as the build a boat lesson. These lessons help students and teachers see major science facilities as national assets for the benefit of everyone.”

— Clare Reimers, Professor and Project Support Office Scientist, Regional Class Research Vessel Program

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“I was delighted to partner with SMILE when developing K-12 bioenergy education programs for a \$40 million USDA-CAP grant proposal. SMILE was able to provide existing partnerships with teachers and students throughout Oregon, and a wealth of experience in program development and delivery. Their expert staff worked closely with us once we were awarded the grant. There is no doubt that OSU’s strong precollege programs allow faculty to be more competitive in research proposals.”

— Kate Field, Director, BioResource Research

# OSU STRATEGIC PLAN 4.0: GOAL 2

## TRANSFORMATIVE EDUCATION THAT IS ACCESSIBLE TO ALL LEARNERS



### Precollege Programs contributes with:

Programming for K-12 during the academic school year and summer, on-campus and across the state, for students and communities that have been historically underserved and underrepresented in higher education and in particular, STEM.

Providing:

- College connections, access, awareness and readiness programs (camps, online mentoring, after-school clubs, field trips, campus visits, workshops).
- Opportunities for undergraduate and graduate students to participate in outreach, internships, service learning, mentoring and other experiential learning, expanding their professional and personal development.



“When I was a young student, I participated in the SMILE program and it instilled a love for science and for learning. For much of my youth, I wanted to be a scientist.

Because of programs like SMILE, I felt that I was able to pursue my dreams and that I was able to achieve whatever I wanted. SMILE taught me not just to think about science, math and learning, but it also taught me to think about my future as a place where I could succeed if I worked hard in school and did my best.”

— Teresa Alonso León, SMILE alumna  
Oregon House of Representatives

“I am a first-generation Latinx college student and have always valued the importance of helping the next generation of students. Through volunteer with STEM Academy I am not only dedicated to continuing to support my community, but also allow students to see someone like them working in a career that they have been told before is not obtainable for them.”

— Maricela Valenzuela, OSU alumna  
Electrical & Computer Engineering

“For some of the students the trip to OSU was the first time they had left Gresham. One student stated, ‘I’m so glad I came because now I think I can do science and I like it. I didn’t think I was smart enough before because I have bad grades but now I think I can and I want to become a female scientist.’ She is now finishing her 8th grade year and has attended the DSW event each year we have gone. She maintains a high grade point average and is a leader at school. DSW is an awesome event that provides empowerment and career exploration for many young girls who don’t have access to similar opportunities.”

— Terralyn Wiley, Dexter McCarty  
Middle School, Portland

# OSU STRATEGIC PLAN 4.0: GOAL 3

## SIGNIFICANT AND VISIBLE IMPACT IN OREGON AND BEYOND



### Precollege Programs contributes with:

Over thirty years of delivering programs across the state and across the nation that:

- Raises visibility of OSU as our successes are presented nationally.
- Disseminates knowledge and translation of OSU faculty research to K-12 audiences locally, regionally and nationally — National Center for Women & Information Technology (NCWIT), Oregon ASK, National Science Teachers Association (NSTA), Oregon Science Teachers Association (OSTA), National College Access Network (NCAN), North American Colleges and Teachers of Agriculture (NACTA).
- Brings K-12 students, families and communities and OSU faculty and students together to learn with and from each other..



“ I came from a rural town in Eastern Oregon with limited oppprtunities. The SMILE club provided an avenue to explore science in middle/high school and helped

me to attend the summer program at Oregon State University. Because of SMILE, I did not become a statistic based on my gender and social class. I thrived and became a successful scientist at a national laboratory.”

— Circe Verba, SMILE alumna  
National Energy Technology Laboratory

“The partnership between research and education is what makes universities special, but engaging K12 educators and students in the excitement of that research and discovery takes experience, planning and effort. SMILE links my lab to Oregon education beyond the university, serving the communities that have the most need, and leading the way for us to share our scientific experiences. We study how photosynthesis pulls carbon from the atmosphere into the oceans... Our work with SMILE engages learners across Oregon in one of the most essential features of the university system – the quest to expand the horizons of knowledge.”

— Steve Giovannoni, Distinguished Professor, Department of Microbiology

“OSU’s Beaver Hangouts has helped create a college-going culture in my classroom. Many of my students will be first-generation college goers. As 7th graders, college is an abstraction, and few of them are developmentally able to conceptualize abstractions. By getting to know a college student, college has become concrete and within reach. They can identify steps and habits necessary to achieving college acceptance and scholarships, as well as describe which post-secondary schools and degrees will best match their strengths and interests. Beaver Hangouts has started a conversation between these young people that may alter the course of their lives.”

— Lizzie Petticrew, Assistant Principal  
St. Andrew Nativity School

# OSU STRATEGIC PLAN 4.0: GOAL 4

A CULTURE OF BELONGING, COLLABORATION, AND INNOVATION.

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## Precollege Programs contributes with:

A culture of:

**Belonging:** Precollege programs are often the first academic contact K-12 students and their parents have with Oregon State University. These programs represent an important early engagement opportunity to inspire students to pursue higher education, and develop an affinity and identity with OSU.

**Collaboration:** Precollege Programs supports tenure-track faculty through career grants, broader impacts and outreach. We provide mentoring and opportunities for professional development/ experiential learning for graduates and undergraduates.

**Innovation:** Precollege Programs staff serve as translators and brokers for faculty researchers to make their research accessible to K-12 students and teachers.

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“SMILE addresses students and teachers where they are at, so the curriculum is at the right level. The issues we sought to educate students about — biotech foods — is incredibly complex at both the gene science and society levels. SMILE staff were able to develop balanced, objective curricula that enabled students to understand both levels, and thus to get a holistic understanding of why this subject is so challenging for consumers and even entire countries. SMILE effectively engaged our grad students in ways that expanded their own skills in teaching, and allowed the most cutting science to be presented to teachers and students.”

— Steve Strauss, Distinguished Professor,  
College of Forestry

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“It was an amazing curriculum, teachers, and chances to make new friends. They allowed us to learn more about things that interest us. It was very engaging to apply what I had learned to an activity and I enjoy hearing the thoughts and opinions of people around me.”

— TAG student participant

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“While on the Oregon State campus, we hear students talk about what life would be like for them if they went to school there. They look in awe at the class choices, and all of the awesome experiences available. They begin to understand how they can afford college, and what they need to do now in order to be prepared. For the first time many students begin to see college or post-secondary training as a real possibility for themselves.”

— Laura Perez, Principal  
— Stephanie Hodges, Field Trip  
Coordinator  
Straub Middle School

# STRATEGIC ACTIONS SUPPORTING OSU'S SP 4.0

| ACTIONS  | TACTICS  |
|--|--|
| <p>Provide distinctive curricula and support innovative pedagogy suited to our mission and vision.</p>             | <ul style="list-style-type: none"> <li>• Design curriculum that highlights faculty research at OSU and is collaboratively developed based on the content and research focus of our partners.</li> <li>• Recent examples include NSF's Regional Class Research Vessel (CEOAS), Genetically Modified Organisms (FES), Lemelson Foundation's iNVENT Summer Camps.</li> <li>• Curriculum is shared at teacher professional development workshops and disseminated at regional and national conferences.</li> </ul>   |
| <p>Retool the OSU experience for the 21st Century learner.</p>   | <ul style="list-style-type: none"> <li>• Provide multiple pathways for K-12 students to access higher education and are often the first academic contact. Programs emphasize college readiness and career awareness.</li> <li>• Deliver programs to economically and racially underrepresented students enhancing the diversity of the future student population at OSU.</li> <li>• Design and deliver professional development to rural science and mathematics teachers.</li> </ul>  |
| <p>Increase the experiential learning opportunities and ensure access.</p>   | <ul style="list-style-type: none"> <li>• Provide mentoring opportunities for approximately 253 undergraduates and 126 graduate students per year from across disciplines and colleges through participation in direct outreach experiences such as STEM Academy summer camps, iNVENT summer camps, Winter Wonderings, Adventures in Learning, Expeditions, Outside the Box, Discovering the Scientist Within and Campus Field Trips.</li> <li>• The SMILE Program works with Mechanical Engineering and Mechanical, Industrial and Manufacturing Engineering student teams to create systems thinking curriculum for clubs and design and build projects that tie-in to other research curriculum being developed for SMILE students.</li> </ul> |
| <p>Make strategic investments in interdisciplinary and transdisciplinary scholarship, teaching and engagement.</p> | <ul style="list-style-type: none"> <li>• STEM outreach, broader impacts, teaching and research..</li> <li>• Connecting to campus activities and careers that youth might not otherwise access.</li> <li>• College connection events at Oregon State University, Eastern Oregon University, Southern Oregon University and Western Oregon University.</li> <li>• Virtual connections through Beaver Hangouts.</li> </ul>  |

# STRATEGIC METRICS

Table 1. Annual Impact

|                    | Numbers | Contact Hours |
|--------------------|---------|---------------|
| K-12 Youth         | 10,554  | 90,375        |
| K-12 Teachers      | 486     | 4,344         |
| OSU Undergraduates | 253     | 10,336        |
| OSU Graduates      | 126     | 1,363         |
| OSU Faculty        | 204     | 1,234         |

OSU's baseline financial support allows Precollege Programs to diversify its financial portfolio through collaborative and innovative partnerships with researchers and private foundations.

Figure 1. Current Funding

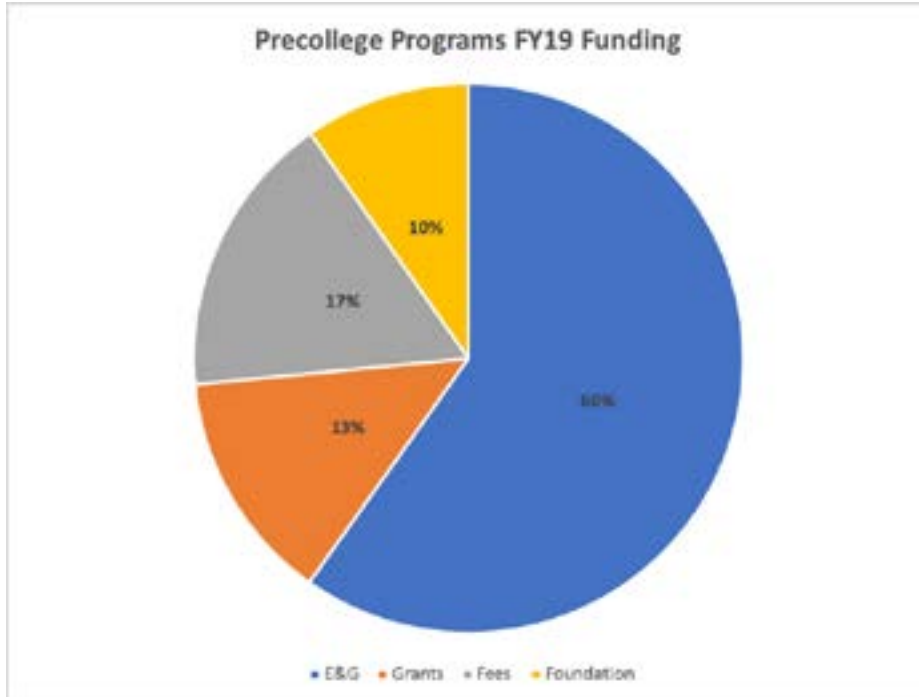
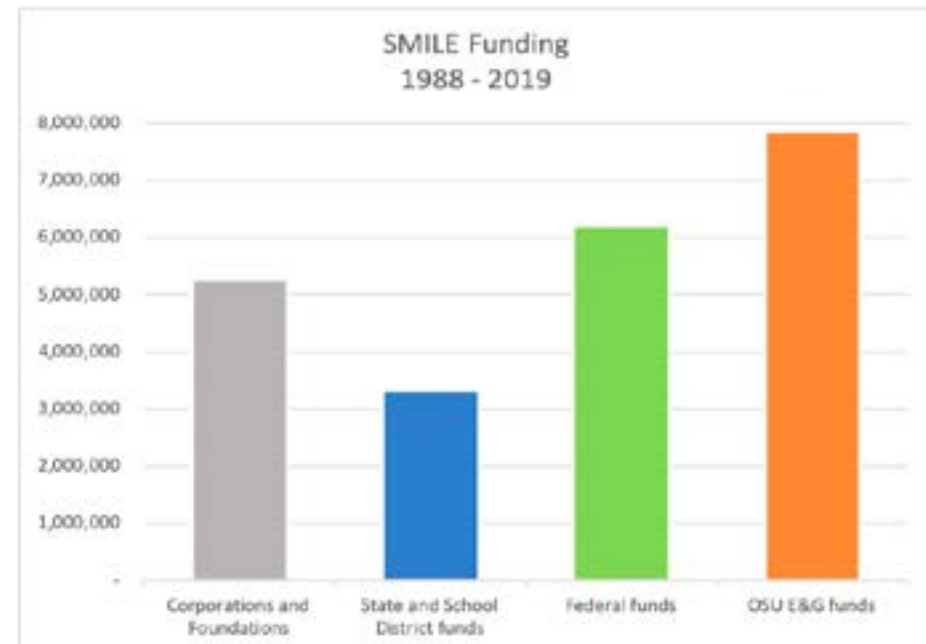


Figure 1. Historical Funding



31 Year Total: Total E&G - \$7.8 million, External funding - \$14.2 million

# SUSTAINABILITY – 30 PLUS YEARS

Precollege Programs supports and oversees a wide range of youth outreach activities designed to increase college access and academic preparation for Oregon's youth.

- We are a nimble staff (eight full-time staff and two part-time staff) able to respond to changes across educational settings through innovative and creative approaches providing a state-wide footprint of programming and outreach through a diverse portfolio of partners and partnerships.



[Beaver Hangouts](#)



[Campus Field Trips](#)



[Discovering the Scientist Within](#)



[Family Science & Engineering Nights](#)



[iINVENT Summer Camps](#)



[SESEY](#)



[SMILE](#)



[STEM Academy](#)



[Talented & Gifted \(TAG\) Programs](#)