Oregon State University
Precollege Programs

2020-21
PCP Report Summary

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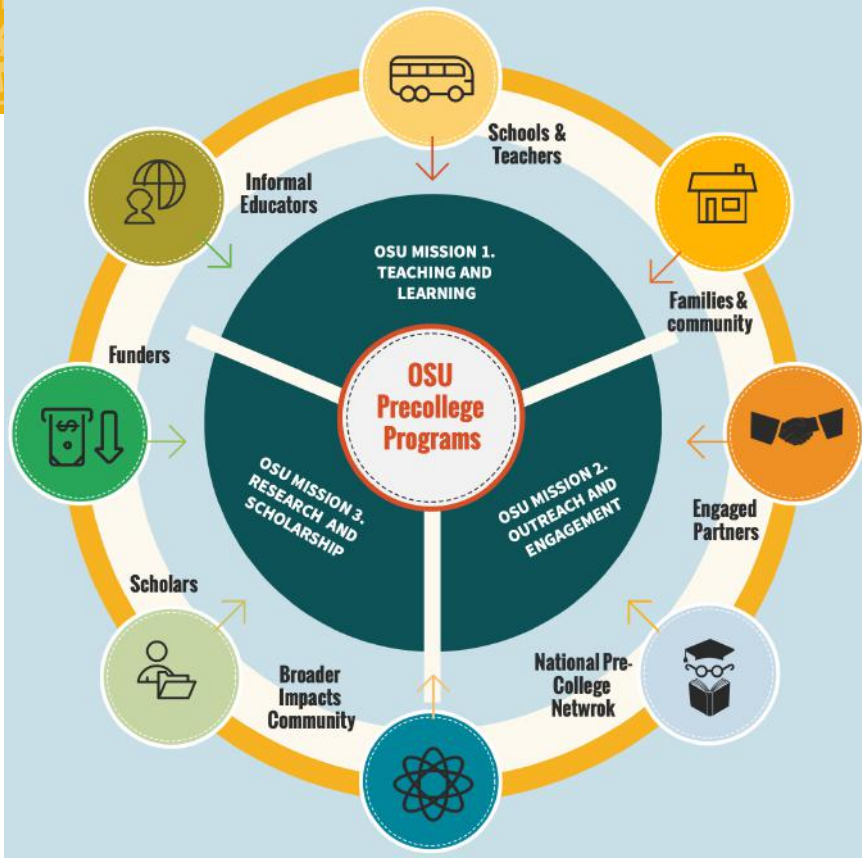
Executive Summary

The Office of Precollege Programs supports and oversees a wide range of outreach activities designed to increase college access and academic preparation for Oregon's youth. Academic programs and youth camps provide pathways to higher education and offer opportunities to enhance college readiness and career awareness. PCP operates within a landscape of education, research and outreach practices that cut across all three core missions of Oregon State University.

The numbers and data reported in this 2020-2021 summary are skewed due to the impact of the COVID-19 pandemic and the challenges posed to K-12 systems, both for schooling and for informal education programming. Educators, youth and families are deeply affected in the aftermath of the pandemic and distance education efforts, but PCP has pivoted, learned, and served our audiences through such unprecedented time.



2020-21 Numbers by Programs

*Due to pandemic stressors and participant fatigue we chose to not implement some of our evaluation tools and surveys, but focused on supporting teachers, students and families in more targeted ways.

Science and Math Investigative Learning Experiences - SMILE provides STEM pathways for underserved youth via weekly afterschool STEM clubs and professional development for teachers.

- 267 SMILE students grades 4-12
- 49 SMILE teachers
- 33 SMILE clubs
- 261 Club meetings
- 11 School districts with signed contracts
- 1 SMILE High School Challenge Event (4 days, 28 students, 9 schools)
- 1 SMILE Middle School Challenge Event (2 days, 27 students, 9 schools)
- 1 SMILE Elementary School Challenge Event (2 days, 38 students, 6 schools)
- 22 Virtual school district meetings
- 2 Virtual teacher workshops (Summer'20 and Winter'21, 2 days each)

42% OF SMILE STUDENTS SELF-IDENTIFIED AS LATINX YOUTH

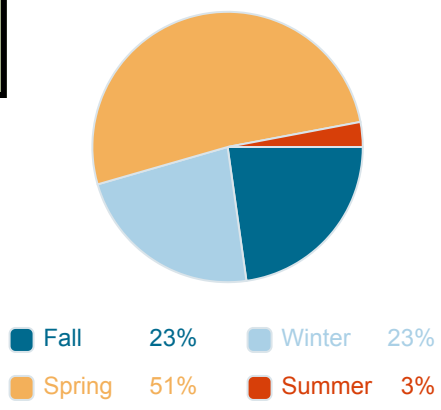
91% OF SMILE STUDENTS QUALIFIED FOR FREE AND REDUCED LUNCH

51% OF SMILE STUDENTS SELF-IDENTIFIED AS FEMALES

Campus Field Trips - CFT encourages and inspire youth to attend college, fostering their interaction with current OSU students.

- 24 Virtual Field Trips - College Connections
- 1197 Students served
  - 715 Elementary School (60% of the total)
  - 376 Middle School (31% of the total)
  - 106 High School (9% of the total)
  - Surveys were not implemented to reduce stressors

CFT 2020-21 student attendance per term



STEM Academy engages youth year-round to increase college attendance and participation in STEM fields.

Summer Program

- 15 camps in 2020, 11 in person camps, 3 virtual camps and one hybrid camp.
- 138 participants (158 separate camp enrollments), 26 were low-income.

Post-event survey results:

- 71% of the students reported that participation in the camp made them think more about what they will do after graduating from high school
- 58% reported that participation made them want to work harder in school
- 83.2% of the students reported that participation increased confidence to participate in STEM projects
- 75% reported that participation in the camp increased their interest in studying a STEM field in college
- 69% of the students reported that participation in the camp increased interest in pursuing a career in STEM

School Year programs

School Outreach:

- 350 middle school students served
- 19 virtual computer science sessions with 1st-4th grade classrooms.

AWSEM Clubs -Advocates for Women in Science, Engineering, and Math

- 2 clubs.
- The 8th-10th grade club was offered in winter term and included 13 girls from Corvallis, Albany, Salem, Portland and Kirkland, WA.
- The 5th-7th grade club was offered in spring term and included 11 girls and 1 boy from Corvallis, Albany, Tangent, Junction City, and Boise, ID. Five of the participants were low-income.

Beaver Hangouts -BH promotes the success of underserved middle and high school youth via equitable access to post-secondary options. OSU student coaches connect with classrooms via videoconferencing.

- 8 schools participating (2 in Spring, 2 in Fall and 4 in Winter)
- 25 students per class (average), including both middle and high school groups
- 37 Beaver Hangout sessions implemented
- As of May 2021, BH Instagram account amassed 162 followers with 233 accounts reached. The BH YouTube reached 13 subscribers

Discovering the Scientist Within - DSW offers a free half-day workshop to encourage young women's exploration of STEM careers. This program was adapted for online delivery due to COVID-19 protocols and a DSW in a Box activity kit was mailed to participants beforehand.

- Winter and Spring Events for a total of 10.5 contact hours
- 110 students served
- 25 undergraduate mentors
- 22 presenters
- 11 different hands-on science activities

"MORGAN WAS THRILLED TO GET THE MATERIALS. IT DIDN'T ONLY PROVIDE VALUE DURING THE COURSE, BUT ALSO HELPED HER FEEL ENGAGED AND ANTICIPATING THE EVENT. ~ PARENT"

Winter post-event survey results show that

- 88.7% of participants reported increased confidence in their ability to succeed in science and engineering
- 86.6% of participants reported increased interest in studying science and engineering in college
- 100% of parents said their daughters seemed engaged
- 100% of the parents said DSW increased their student's excitement about STEM
- 100% of parents would sign their daughters up again

Talented and Gifted Programs - TAG provide educationally challenging and engaging curriculum, allowing youth with high abilities to explore interests in ways they can't do in the regular school setting.

Summer Program 2020: one of only two youth programs in the Pac 12 to offer in-person camps in 2020.

- Expeditions, Adventures in Learning and Outside the Box TAG programs offered
  - 10 days, 80 students, 70 contact hours per program

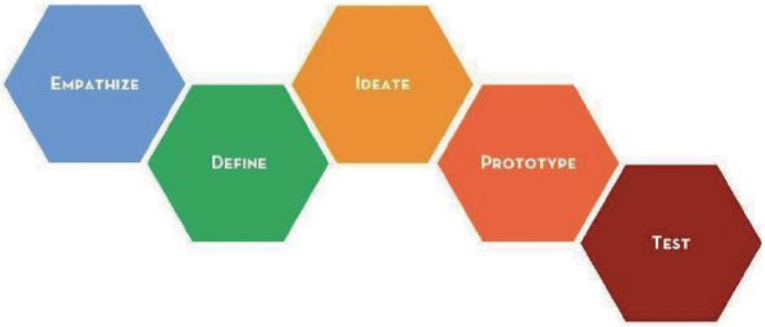
School Year program 2021

- Winter Wonderings virtual program offered
  - 6 days, served 225 students, 30 contact hours
- Human-Centered Invention for TAG Learners virtual Program in collaboration with the Greater Albany Public Schools (GAPS) and iINVENT program
  - 3 sessions of 3-week duration each, 49 students reached, materials in both English and Spanish.

Winter Wonderings post-event survey results show that

- 88% of participants said that the program was fun, engaging and allowed them to explore academic interests.
- 83% of participants said that the program gave them the opportunity to communicate with other TAG students in a positive way.
- 95% of the parents said the Winter Wonderings program provided educational opportunities not typically available to their child.
- 94% of the parents said that the program allowed their child the opportunity to explore new academic interests.
- 94% of the parents felt that the program provided a positive place for their child to interact with other gifted and talented children.

iINVENT Program delivers one-week camps on campus and held in local communities where middle school youth create things worth inventing and develop skills applying STEM concepts.



Summer Program 2020

- 8 three-week virtual iINVENT camps (cohort model) and 1 in-person camp
- 103 students reached
- Three of the 8 cohorts offered Spanish instruction.
- 7-week virtual training for 5 camp mentors

School Year program (January-May, 2021)

- 14 virtual classrooms (cohort model). 4 of the 14 cohorts implemented in Spanish
- 2 districts, 8 public schools and 1 private school
- 8 classroom teachers
- 5 middle schools and 7 Upper elementary schools
- 292 students reached

Table 1. Demographics of Camp Participants (Summer 2020)

Total students	94
Age/Gender	
Age 11-13	95%
Female	46%
Male	52%
Gender fluid	1%
No reply	1%
Race/Ethnicity	
Asian-American	1%
African American/Black	4%
Hispanic/Latino	20%
Multi-racial/ethnic	9%
Native American/Alaska Native	2%
White/Non-Hispanic	64%
Low-income	
Yes	38%
No	41%
Decline	21%
Parent Education (188 responses)	
No HS Diploma/GED	2%
HS Diploma/GED	4%
Some College	14%
AA or Tech Degree	8%
BA/BS	18%
MA/MS, PhD	15%
Decline	39%

2020-21 New Program Efforts

*Due to pandemic stressors, PCP pivoted to implement new efforts following the Oregon Department of Education's 20-21 Distance Learning Guidance.

STEM@Home Webinars was designed for families (and the general public), offering presentations by OSU students, staff and partners who provided college connections and STEM content with activities that families can do from home while watching live or accessing the videos on-demand.

- 27 STEM @ Home sessions
- 19 of the 27 sessions were led by PCP partners
- Topics included Mathematics, Computer Science, Pharmaceuticals, Invention, Animal Science, etc.

Virtual Educator Professional Development Series offered virtual professional development sessions for educators to engage in STEM topics, gather helpful resources for teaching lessons for their students online.

- 9 live webinars for educators provided in Fall 2020 and Winter 2021
- Topics varied and included (list not exhaustive): Agriculture, wildlife Science, Genetics, etc.

In summary, for FY 2020-21, a total of approximately
2,986 K-12 students were served by our programs
65 educators were supported by our programs
11 professional development opportunities were offered to educators
Over 30 schools served
40 undergraduate students worked in our programs
Over 450 individual activities were offered by all of our programs combined

Beyond Programs

PCP's Broader Impacts and Engagement Efforts :
We have enabled OSU's faculty to broaden the educational impact of research projects while co-creating STEM curricula for K-12 audiences and professional development opportunities for educators across the state of Oregon.

We implemented "Chats for Broader Impacts", a space where faculty members, researchers, or community partners writing grants can request our collaboration. **This Formalized system of support has generated 12 new partnerships and grant proposal collaborations.**

- We offer professional expertise and a menu of educational services and infrastructure to deliver STEM programs and curricula, college connections, and teacher professional development;
- We engage in institutional and community partnerships that are reciprocal and mutually beneficial to advance STEM youth education and the impact of STEM research in society.
- We collaborate with faculty researchers to develop new outreach programs and STEM curricula that rely on evidence-based practices, helping secure grants and brokering research to Oregon communities and beyond.
- We implement an iterative process for program development that promotes co-learning by all stakeholders.

Active Grants

Because we rely on grant funds to support about half of our budget, at any given time, we have a number and variety of grants, some of which we submit ourselves and some that we are a part of in collaboration with faculty, internal and external partners. Currently, our funding support includes the following:

30 active grants from Federal, State and Foundation Funds.
~$2,132,820.00 brought to PCP and SMILE in grant funds
~224, 610,737.000 brought to OSU in grant funds and collaborations
~20 OSU faculty with grant partnerships

Honorable Mentions

All of PCP's impact reported here is a result of a small but mighty team of 11 people: PCP and SMILE Director, SMILE Associate Director, STEM Academy Directors 4 Program Coordinators, 1 Grant Manager, 1 administrative specialist, and 2 media assistant students.

There are a number of professional development opportunities the team attended throughout the year including professional conferences, meetings, workshops and service committees.

Publication and Scholarship Highlight for 2020-21

Troy E. Hall, Jay Well, and Elizabeth Emery, 2021.
Fact-Checking in an Era of Fake News: A Template for a Lesson on Lateral Reading of Social Media Posts. NSTA/Connected Science Learning May-June 2021 (Volume 3, Issue 3.)

Washburn, Quinn; Wolf, Sarah; Well, Jay; Noell, Stephen; Lee, Chih-Ping; Bolaños, Luis; Giovannoni, Stephen J.; and Suffridge, Christopher (2021). Oligotrophic: A marine microbiology board game-based activity for high school science classrooms NSTA/ The Science Teacher—May/June 2021 (Volume 88, Issue 5).

Talamantes, Adam (2020). Equity Strategies: Community Hosts and Design Thinking in a Middle School Summer Camp NSTA/ Connected Science Learning July - September 2020 (Volume 2, Issue 3).

Rowe, Shawn; Riggio, Mariapaola; De Amicis, Raffaele; and Rowe, Susan (2020) Teacher Perceptions of Training and Pedagogical Value of Cross-Reality and Sensor Data from Smart Buildings Education Sciences, Received: 31 July 2020; Accepted: 2 September 2020; Published: 4 September 2020.

Taylor, Seth; Calvo-Amodio, Javier; and Well, Jay (2020). A Method for Measuring Systems Thinking Learning Systems 2020, 8(2), 11.