OR_FY19_Year 5Ext_APD

Oregon Space Grant Consortium Lead Institution: Oregon State University
Director: Jack Higginbotham
Telephone Number: 541-737-2414
Consortium URL: http://spacegrant.oregonstate.edu
Grant Number: NNX15AJ14H

A. PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space- related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Oregon Space Grant Consortium is a Program Grant Consortium funded at a level of $582,300 for fiscal year 2019.

B. PROGRAM GOALS

State the Consortium Goals and Objectives from your base proposal and augmentation proposal. The objectives should express quantitative targets when appropriate.

The Oregon Space Grant Consortium (OSGC) develops and implements programs, projects, and activities that contribute to the development of a diverse and qualified STEM national workforce in disciplines needed to support and achieve NASA's strategic goals. OSGC provides students with quality, hands-on experiences and opportunities through authentic science inquiry using NASA aligned material and resources. OSGC focuses on interdisciplinary and inter-institutional collaborations among member institutions to strengthen the statewide STEM-based educational infrastructure. OSGC relies on the strength of its community college, university, and informal education partners to provide a diverse pool of students, educators, researchers, and administrators to sustain a consortium that continually and effectively contributes to the National Space Grant Program.

OSGC Goal 1: Contribute to development of capable and prepared human capital in the STEM disciplines by providing access to unique hands-on research and educational opportunities to Oregon students, with an emphasis on involvement of women and underrepresented minorities in STEM fields.

OSGC Goal 2: Utilize the state and national network of partners to strategically disseminate NASA information and resources to students, educators, and faculty to increase awareness of and participation in NASA-related research and educational opportunities. **OSGC Goal 3:** Invest in a balanced suite of interdisciplinary research, education, and public service programs that reflect the priorities of the National Space Grant Program and NASA Office of STEM Engagement with a primary focus on NIFS, Higher Education, and Research Infrastructure and a secondary focus on Informal Education and Public Service.

Internship Goal 1: Effectively and broadly disseminate NASA Center Internship opportunities using the NASA internship online portal via the OSGC affiliate network and social media. **SMART Objectives:** 1) Provide NASA Center Internships to a diverse student group congruent with the state demographics of 15.3% underrepresented minorities and to the NASA Office of STEM Engagement requirement of 40% female. 2) Provide NASA Center Internships to students representing a diverse range of affiliate institutions. 3) Collaborate with NASA Center Education Affairs Officers and NASA Internships Program Coordinator to competitively place students in NASA Center internships.

F/S Goal 1: Effectively and broadly disseminate F/S opportunities via the affiliate network and social media. **SMART Objectives:** 1) Utilize the OSGC online scholarship application system to achieve efficient and secure data collection, information transfer and payment processing in a timely manner. 2) Competitively award F/S to a diverse undergraduate student group congruent with state demographics of 15.3% underrepresented minorities and the NASA Office of STEM Engagement requirement of 40% female. 3) Provide F/S to students representing a diverse range of affiliate institutions. **F/S Goal 2:** Build collaboration between undergraduate students and faculty mentors working within a STEM discipline relating to NASA's Vision and one or more of the Mission Directorates. **SMART Objectives:** 1) Competitively award up to three UG Fellowships in the FY2019-20 to students conducting research at OSGC research based 4-year affiliate institutions. **F/S Goal 3:** Promote and retain UG student enrollment in STEM programs. **SMART Objectives:** 1) Award up to 15 UG Scholarships to students enrolled at 4-year affiliated institutions and 14 Community College Scholarships to students enrolled at CC affiliated institutions. All scholarship awardees must be enrolled in STEM programs including physical sciences, life sciences, planetary sciences, mathematics, computer science, technology, or engineering.

HE Goal 1: Support higher education programs that align with NASA's Education Priorities and Lines of Business by providing direct student support for authentic hands-on experiences in the STEM disciplines, providing experiential learning opportunities, increasing STEM engagement through unique NASA-related experiences, and fostering course enhancement and development based on the strengths of the OSGC affiliates and NASA-related research. **SMART Objectives:** 1) Efficiently and broadly disseminate the call for the UG Team Experience Award Program via the affiliate network and social media to support up to 7 teams participating in a NASA-related hands-on STEM based project in the FY2019-20 funding cycle. 2) Award up to five STEM Community-College Opportunity for Research Experience (SCORE) awards to undergraduates enrolled in STEM or STEM education programs at affiliated community colleges. **HE Goal 2:** Provide unique and authentic hands-on higher education opportunities to a diverse population of students, representing the affiliate institutions. **SMART Objectives:** 1) Support UG Team Experience awards and SCORE awards congruent with or in excess of state demographics of 15.3% underrepresented minorities in STEM fields and the NASA Office of STEM Engagement requirement of 40% female.

RI Goal 1: Provide opportunities for students and faculty to present their research to their peers and potential students/faculty. **SMART Objectives:** 1) Host the Student Symposium and the SCORE

Symposium to highlight OSGC-supported student research experiences and projects. Engage and recruit potential students to participate in OSGC programs. **RI Goal 2:** Enable research infrastructure programs for faculty and students to conduct research in STEM fields that align with NASA's Lines of Business and current areas of emphasis while encouraging university researchers to utilize NASA's unique capabilities. **SMART Objectives:** 1) Administer the Faculty Research Award Program for the period 2019-2020 to engage faculty to work with NASA-related research. 2) Complete final year of Space Radiation Biology Faculty Research Award.

Pre-College Goal 1: Support the NASA Education area of emphasis to engage educators in hands-on curriculum enhancement. **SMART Objectives:** 1) OSGC supports the efforts of the South Metro-Salem STEM center to provide professional development opportunities for in-service educators to bring NASA material and content to the classroom through exposure to NASA scientific and technical expertise. OSGC will solicit proposals and make an award for delivery of a NASA related in-service teacher workshop during the summer of 2019. **Pre-college Goal 2:** Support the NASA Education aspirations for increasing the participation of underserved populations with STEM fields of study by continuing the Native Launch Initiative. **SMART Objectives:** 1) Conduct NASA themed robotics and aviation workshops in cooperation with the Tribes of the Grande Ronde and Siletz Nations during the summer of 2019 to engage more than 50 Native-American K-12 students. **Pre-college Goal 3:** Support the NASA Education aspirations for increasing the participation of underserved populations with STEM fields of study by establishing the Oregon NASA Space Science Education Program (OSSEP). **SMART Objectives:** 1) OSSEP-Continue development of NASA outreach activities for delivery to K-12 schools, libraries, and general public events. 2) OSSEP-Deliver at least 10 events with a total audience of at least 100 people and students. **Pre-college Goal 4:** Support the NASA Education area of emphasis to engage students from underserved, underrepresented communities with NASA Commercial Crew Program-NextGen STEM program. **SMART Objectives:** 1) Arrange for two members of the OSGC education staff to attend CCP-NextGen training sessions at either the Nebraska and/or Massachusetts sites. 2) Conduct 10 NASA CCP-NextGen STEM events in northwest and central Oregon to engage more than 500 K-12 students and 100 members of the general public. 3) Utilize the OSGC student demographic and longitudinal tracking system to report participation through OEPM.

Informal Education Goal 1: Host invited talks highlighting the scientific, technological, and social impacts of the Apollo missions. **SMART Objectives:** 1) Host up to seven invited talks by speakers on subjects selected by the Affiliate Representatives and OSGC Director. **Informal Education Goal 2:** Provide NASA aerospace information, resources, and networking opportunities to students, educators, affiliates, and the general public. **SMART Objectives:** 1) Disseminate NASA material, resources, and professional development opportunities via the OSGC website, educator blog, and via social media avenues. **Informal Education Goal 3:** Utilize informal education and public venues as a means to share faculty research and areas of expertise with students and general public. **SMART Objectives:** 1) Director to serve as docent/volunteer at informal education affiliate. 2) Support speakers for events arranged and/or hosted by affiliates. 3) Reappoint two Astronomers-in-Residence with the goal of delivering at least 10 events with a total audience of 100 people.

Consortium Management Goal 1: Efficiently and effectively administer and lead the grant, maintain open communication within the Consortium and among affiliates, contribute to the national network, and deliver succinct and timely reporting to NASA's Office of STEM Engagement. **SMART Objectives:** 1) Host the OSGC Affiliate Meeting. 2) Attend the National Council of SG Directors Meetings. 3) Disseminate info and opportunities from NASA HQ and the National SG Program directly to affiliate reps.

4) Maintain the OSGC website and social media with current program information, research and education opportunities, resource for students and educators, and other general OSGC/NASA news and updates. 5) Make annual affiliate visits as permitted. 6) Complete NASA reporting in a timely manner. 7) Provide contact info for student awardees for longitudinal tracking purposes. 8) Director attends the 2019 reverse site visit meeting in Washington DC as required by NASA's Office of STEM Engagement. 9) Hire a 0.5 FTE Program Facilitator position, target start date-November 1, 2019. 10) Contract with the OSU Center for Research on Lifelong Learning to prepare the evaluation plan for inclusion in the next call for proposals for SG funding from the NASA Office of STEM Engagement. Target start date-July 1, 2019. Deliverable is a report recommending language for submission as part of an OSGC proposal for the next multiyear request for proposals from the NASA Office of STEM Engagement. 11) Send a second representative to the 2019 reverse site visit planned for August 2019 in Cleveland, Ohio.

C. PROGRAM/PROJECT BENEFITS TO PROGRAM AREAS

*Provide concise, significant, and meaningful **highlights or anecdotes** (no more than three) that are directly related to work completed in FY 2019, highlighting student and/or project accomplishments. Specify alignment to Space Grant program areas/ elements.*

Great hands-on experiential learning opportunity provided by the OSGC. This directly helped me understand my desired career path and get opportunities for continuing my education. (Trevor Rose, 2018 OSGC UG Team Experience Award - OSU). Aligns with Higher Education projects.

The Oregon Space Grant awoke a passion for space exploration, education, and advancement that was buried beneath my other academic concerns. This program helped focus my goals, drives, and values as a student and professional while helping me get connected to some of OSU's most phenomenal professors and professionals. I am actively pursuing space and STEM education careers, and hope to make a huge impact in these fields when I graduate. (Jerika Christman, 2018 OSGC UG Scholarship - OSU). Aligns with HE Programs.

Participation in OSGC impacted my education by allowing me continue building the foundations of my STEM pre-reqs as I move into a mechanical engineering degree. It prompted me to want to apply for SCORE, for which I was also an award recipient and am excited to present my first research project to the OSGC symposium this coming May. (Teresa Nguyen, 2018 OSGC CC Scholarship-PCC SE). Aligns with HE Programs.

D. PROGRAM ACCOMPLISHMENTS

Refer directly to the specific consortium goals and SMART objectives in your base and augmentation proposals when describing your accomplishments. Describe the accomplishments as referenced to each of the five Space Grant Program Areas. The accomplishments should be a summary of the accomplishments rather than a specific description of each individual activity.

a) NASA Internships, Fellowships, and Scholarships:
b) Higher Education Projects:
c) Research Infrastructure Projects:
d) Precollege Projects:
e) Informal Education Projects:

a) NASA Internships, Fellowships, and Scholarships: 1) Promoted NASA center internship opportunities via the online application system at https://intern.nasa.gov through the OSGC network, website, and social media resources. In 2019, 11 summer internships, 2 fall internships, and 5 spring 2020 were funded, a total investment of $162,060. 2019 summer interns presented projects at the 2019 Student Symposium. Fall 2019 and spring 2020 interns will

present their work at the 2020 Student Symposium. Of students supported, 50% are female, 6% are underrepresented minorities in STEM, and 6% reported military experience. Demographics for 2019 summer and fall interns will be reported in FY2019 OEPM. Spring 2020 interns will be reported in FY2020 OEPM. Selections for 2020 internships will be made by May 2020; selected students will be tracked and awards reported in subsequent reporting cycles. 2) Disseminated the 2019-20 F/S program call to the affiliate network, and via the website and social media resources. Utilized the Education Programs Support Services (EPSS) online application and review system to ensure secure data collection, information transfer, and payment processing. 78% of OSGC higher ed affiliates were represented in the F/S applicant pool. Awards were announced in Aug 2019; payment disbursements made in Oct 2019/Mar 2020. 14 CC Scholarships at $1K/student, 33 UG Scholarships at $3K/student, and two UG Research Fellowships at $5K/student for a total of 49 F/S awards were made during this reporting period. Fellows work directly with a mentor to conduct NASA-related research throughout the academic year and are required to present projects at the Student Symposium. Of the 49 F/S awards made, 55% were awarded to females, 26% were awarded to underrepresented minorities in STEM fields with 8% not reported, 6% were awarded to students with disabilities with 18% not reported, and zero reported military experience. Percentages are in excess of the state demographics and the NASA Office of STEM Engagement female demographic requirement. 22% of affiliate institutions eligible for the F/S program are designated Minority Serving Institutions. 32% of F/S awards were made to students attending MSIs. 2019-20 F/S recipients will be reported in FY2020 OEPM. OSGC will open the call for the 2020-21 F/S Program in February 2020; recipients will be tracked and awards will be reported in subsequent reporting cycles. 3) Of the 5th Year Extension NIFS budget, 18% of the associate director's salary was devoted to implementing and executing NIFS programs.

b) Higher Education Projects: 1) The UG Team Experience Award Program call, promoting year-long hands-on STEM based student research projects was disseminated via the OSGC network, website, and via social media and awarded through a competitive proposal process. 14 proposals were selected for funding totaling $140,000. 33% of the students significantly involved with the projects are female, 23% are underrepresented minorities in STEM with 5% not reported, 4% report disabilities with 2% not reported, and 3% of students report military experience. Supported projects include NASA USLI and Base 11 subsystem rocketry programs, OreSat projects supporting NASA's CubeSat Launch Initiative missions, a Lunabotics competition team, crystal solar cell development, and an aquaponics system. Teams present their projects at the 2020 Student Symposium. Significantly involved members will be included in FY2020 OEPM. 2) The STEM Community-College Opportunity for Research Experience (SCORE) Program provides community college students an opportunity to work collaboratively with a faculty mentor on a term-long research project in STEM or STEM education that goes beyond what is taught in the classroom. Projects may include individual components of a team or faculty research project. Projects were competitively selected; 12 SCORE awards of $800 each were awarded. Of the 12, 25% are female, 25% are underrepresented minorities in STEM with 17% not reported, 17% report disabilities with 17% not reported, and 8% reported military experience. Students who received SCORE awards will present their projects at the 2020 SCORE Symposium. SCORE students will be reported in FY2020 OEPM. 3) Of the 5th Year Extension Higher Education budget, 13% of the associate director and program manager's salaries was devoted to implementing and executing higher education programs.

c) Research Infrastructure Projects: 1) Hosted the 2019 Student Symposium in Nov 2019; all UG Research Fellows, UG Team Experience Awardees, NASA interns, and students who are a part of the Faculty Research Award Program participated. Dr. José-Antonio Orosco, Professor of Philosophy with the School of History, Philosophy, and Religion at OSU, gave the keynote address *Boldly Going: Science Fiction and the Transformative Imagination*. 38 students presented; 32% are female. The event was well attended by students, faculty, staff, and public. Students may include the symposium as an invited talk and a publication as a result of their participation. Student papers will be reported in FY2020 OEPM. 2) Hosted the second annual SCORE Symposium in May 2019. The SCORE Symposium gives community college students who are recipients of the term-long research project SCORE awards, an opportunity to present their work to their peers, faculty/staff, and students from 4-year institutions. Dr. Jack Higginbotham, OSGC Director gave the keynote address *Nuclear Space Power: Past, Present, and Future*. SCORE students may include the symposium as an invited talk and a publication as a result of their

participation. Student papers will be reported in FY2019 OEPM. 3) The Faculty Research Award Program is a competitively awarded workforce development program designed to develop a diverse, capable, and prepared human capital in aerospace-related NASA STEM disciplines by funding scientific aerospace-related faculty research at OSGC institutions. Faculty are encouraged to build connections with NASA scientists and engineers. Students involved with faculty research are included in the significant award pool and reported in OEPM. Students will present their work at the 2020 Student Symposium and be reported in FY2020 OEPM. In FY2019, OSGC continued support for the project titled *Investigations into Zebra Fish Cataract Formation Following Exposure to Simulated Cosmic and Galactic Radiation Fields* to Dr. Jan Spitzbergen in the Aquatic Animal Health Laboratory at Oregon State University. 4) The Affiliate Faculty Research Incubator Program (AFRIP) was added to the Research Infrastructure portfolio to recruit additional faculty to become involved with OSGC. AFRIP provides basic resources needed to develop authentic hands-on student experiences rooted in NASA-related, STEM-focused issues and the incorporation of real-life problem-solving, while supporting the efforts of the NASA Mission Directorates. Faculty from affiliate member institutions are eligible to apply. Two projects, *Designing an Educational Exhibit on Orbital Dynamics within the Earth-Moon System* and *Leveraging a Meteorite Collection to Foster STEM-Related Research for Faculty and Students* were funded during this reporting period; outcomes will be reported in FY2020 OEPM. 5) Of the 5th Year Extension Higher Education budget, 10% of the associate director and program manager's salaries was devoted to implementing and executing higher education programs.

d**) Precollege projects:** 1) STEM in-service teacher development support is delivered via the South Metro-Salem STEM Partnership (SMSP), a regional hub designed to increase access, excitement, and engagement of STEM students, and experiential learning. OSGC supports the SMSP efforts to provide opportunities for in-service educators to bring NASA material and unique STEM content to the classroom through exposure to NASA scientific and technical expertise. A core component, the Oregon Connections tool, matches the expertise of STEM professionals with K-12 and university educators who seek their experience, participation, and support. Oregon Connections provides or augments embedded professional development opportunities for in-service educators. SMSP's mission supports the NASA Education area of emphasis to engage educators in hands-on curriculum enhancement. 2) To continue supporting NASA's Education area of emphasis on engaging students from underserved, underrepresented communities, OSGC added the NASA Commercial Crew Program-NextGen STEM project to the Pre-college program portfolio. Using the train-the-trainer model, the CCP-NextGen program will prepare staff and volunteers to bring the excitement of NASA to Oregon K-12 schools, libraries, and informal education organizations through virtual reality simulations of NASA launch facilities and associated curriculum. Schools and programs historically connected with enabling underserved students, including Portland Teachers Program, the Education Offices of the Confederated Tribes of the Grand Ronde, and the Confederated Tribes of Warm Springs, will have first access to the opportunity to engage in hands-on NASA experiences. John Cowens, JPL Solar System Ambassador and Astronomer-in-Residence completed the CCP-NextGen STEM virtual reality training hosted by the Nebraska Space Grant Consortium in Omaha, NE May 2019. OSGC Associate Director will attend the second round of training as it becomes available. The VR headsets and supplies are in process of being procured. Full execution of the program will commence in 2020 once supplies are in hand and staff/volunteer training is complete.

e) Informal Education projects: 1) In support of NASA's effort to celebrate the Apollo 50th Anniversary, OSGC sponsored a seminar series highlighting the scientific, technological, and social impacts of the Apollo missions. Events included the Apollo Festival at the Evergreen Aviation & Space Museum with talks by Robert Peckyno on *Women's Contribution to Early Space Science* and Alex Ruzicka on *What Scientist have Learned from Apollo about the Moon's and Human's Place in the Cosmos*. OSGC director, Jack Higginbotham presented *America's Next Step on the Moon: Artemis* at Southwestern Oregon Community and *NASA Space Grant – 30 Years of Aerospace Workforce Development, The Oregon Experience* at the American Association of Physics Teachers Winter Meeting in Orlando, FL. Jack Higginbotham and OSU professor of Geology, Shan de Silva contributed to Oregon Public Broadcast's Oregon Experience documentary *How Oregon's Moon Country Helped Prepare Astronauts for the Lunar Landing*. All public events were well attended and received press coverage. 2) The Informal Ed Award Program supported the K-12 outreach efforts of The Museum at Warm Springs and the Confederated Tribes at

Warm Springs Seeds of Discovery interactive student engagement program. The program provided students with out-of-classroom learning activities in a museum setting, including robotics and mini-drone flights to engage and excite them about science learning and understanding. Delivered in June 2019, 265 4th grade students participated in the program, of which 34% are Native American, 34% are Hispanic, and 95% are economically disadvantaged. Data will be reported in the FY2019 OEPM under Informal Ed. 3) Disseminated NASA material, information, resources, and professional development opportunities via the OSGC website and social media avenues. The director serves as a docent for Evergreen Aviation & Space Museum, contributed articles for the Museum newsletter, and served as advisor to the Museum's Education Advisory Board. The associate director delivers talks about SG programs and opportunities to classes and student clubs as requested. 4) The Astronomer-in-Residence Program provides subject matter experts from within the consortium designated to address requests for information and education related to astronomy and space science. Current AIRs include a former K-12 science teacher and Solar System Ambassador for Jet Propulsion Laboratory, and a physics/science/honors college instructor at OSU. Collectively in FY2019, the Astronomers-in-Residence gave over twenty public talks, star parties, Apollo 11 50th Anniversary talks, and hands-on events, reaching a combined total of 972 general public and students. AIRs are also called upon to contribute to articles and conduct print and radio interviews.

E. MILESTONES

Refer directly to the Milestones chart included in your 5th year funding extension proposal.

a. Include a summary of your proposed milestones, and describe the extent to which each milestone has been met. If there have been significant deviations from your proposed milestones that will affect your initial period of performance, please provide a justification for those deviations.

b. If there have been significant deviations from your proposed milestones that will affect your initial period of, please provide a revised list of milestones.

Milestones for the reporting period include making the call for and awarding undergraduate scholarships and fellowships, community college SCORE awards, NASA internships, UG team experience awards, and faculty research awards. The calls and awards were made according to the proposed schedule. The Student Symposium, SCORE Symposium, and the annual Affiliate Meeting were hosted on schedule as proposed. OSGC leadership attended National and Regional SG Meetings and the Mega PI meeting according to the proposed schedule. Began implementation of the internal assessment and evaluation plan and delivered the Apollo Anniversary Seminars as proposed. South Metro-Salem STEM center provided the in-service teacher workshops during the proposed timeframe. OSGC is providing data management in a timely manner. Efforts to provide opportunities for K-12 underserved and underrepresented Native communities via the OSSEP and Native Launch Initiative programs as proposed were redirected to developing the OSGC staff's competency with the Commercial Crew NextGen Virtual Reality program. One staff member has attended training sponsored by NASA KSC, and VR headsets and supplies needed to implement the program are currently in the procurement process. A second staff member will attend additional training when made available to SG. CC-NextGen VR workshops and classroom implementation will be delivered when supplies are in hand and training complete. Astronomers-in-Residence provided public and informal talks, activities, star parties, and classroom presentations to engage students and general public as proposed.

F. PROGRAM CONTRIBUTIONS TO NASA EDUCATION PERFORMANCE GOALS

Include summary data for the bulleted list below:

- **Diversity**: Describe the diversity of institutions, faculty, and student participants (gender, underrepresented, underserved)
- **Minority Serving Institution Collaborations**: Summarize interactions with MSIs within the consortium, and describe projects/activities.
- **Office of Education Annual Performance Indicators (APIs)**: Provide numerical values for consortium contributions to API's. Refer to Table 1: *Annual Performance Plan: FY19 Performance Goals and Annual Performance Indicators* on page 6. Note the explanation above the table.

    - API 3.3.3: STEM 19-1
    - API 3.3.5: STEM 19-5

Diversity: OSGC maintains diverse management, faculty, institutions, student participants, and projects. The 21 consortium members include 7 state higher education institutions, 3 private higher education institutions, 8 community colleges, and 3 informal education institutions, representing all geographic locations of the state. The majority are active in the consortium. Every two years, a new Affiliate Associate Director is voted to serve as the voice of the affiliates, providing an opportunity for all affiliates to participate in leadership and to attend regional and/or National SG meetings. In Nov 2018, Eve Klopf, with OIT was voted into office and will serve in this capacity until Nov 2020. OSGC strives to make all student awards congruent with or in excess of diversity demographics. Of the 49 direct funded F/S students, 12 SCORE awardees, and 18 interns for FY2019, 49% are female, 22% are underrepresented minorities in STEM with 8% not reported, 6% reported disabilities with 14% not reported, and 3% reported military experience. Of the 126 direct student participants, 33% are female, 23% are underrepresented minorities in STEM with 5% not reported, 3% reported disabilities, and 3% are veterans. The combined percentage of both direct funded and direct participants (205 total) is 40% female, 22% underrepresented minorities in STEM with 6% not reported, 4% disabled with 7% not reported, and 3% students reporting military experience.

Minority Serving Institution Collaborations:
In FY2019, four Oregon institutions of higher education received the MSI designation and includes Lane Community College, Portland Community College, Portland State University and Pacific University. OSGC strives to provide significant funding via scholarships, fellowships, internships, student experience team support, and faculty research to support MSI students and faculty. 32% of direct funded students attend Minority Serving Institutions (MSI). 19% of direct participants attend MSIs during this reporting period.

Office of Education Annual Performance Indicators:

- API 3.3.3: STEM 19-1: 118
- API 3.3.5: STEM 19-5: 32

G. IMPROVEMENTS MADE IN THE PAST YEAR

Succinctly *describe improvements and/or adjustments made last year that demonstrate*

significant change(s) within the consortium. The improvements and/or adjustments that brought about change may have been in management, resource allocation, project design, project evaluation, etc.

This reporting period marks the second year of the SCORE Program. A slight increase was made to the award value. In an effort to increase the value of the overall student experience, added round table discussions with STEM-relevant topics to the Student Symposium agenda, which received positive feedback from participants.

Added the Affiliate Faculty Research Incubator Program (AFRIP) to the Research Infrastructure portfolio. AFRIP is designed to act as a path for student development for the NASA education pipeline and to prepare young faculty to leverage the experience into a potential full-scale NASA research award.

Collaborate with the OSU Center for Research on Lifelong Learning to provide program evaluation and assessment. Dr. Nancy Staus, Research Associate with the Center, formerly a conservation biologist, specializing in how and why people learn science, was brought on to conduct the assessment. Dr. Staus attended the Affiliate Meeting and the Western Region SG Meeting to learn more about Space Grant structure, impacts, and proposed outcomes to prepare an evaluation plan, currently in preparation. Dr. Staus will work with OSGC to use logic models or road maps to efficiently and effectively grow the program to attain the desired outcomes that best support NASA's mission/goals prioritized by the Office of STEM Engagement.

Reestablished the OSGC Ex Committee to offer programmatic and directional oversight. Committee members include OSGC Director, Associate Director, and Program Manager, Center for Research on Lifelong Learning research associate, and two faculty members from affiliate institutions.

H. CURRENT AND PROJECTED CHALLENGES

Identify any current or projected challenges in the implementation or execution of activities. Explain how the management team is working to address the challenges identified and/or how National Program Staff can assist. ***If this is your close-our report, please skip this section.***

Ongoing efforts are made to encourage affiliate representatives to increase awareness of available Space Grant opportunities and resources designed to promote and enhance STEM literacy at their respective institution and broaden the scope of program applicant pools. OSGC continually assess affiliate involvement and participation in an effort to strengthen the consortium. The director works with affiliates who are peripherally performing to develop a strategic plan to increase involvement.

I. PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

List the institutions that comprise the consortium; include the name, type of institution, key characteristics, and role in consortium activities/operations. A listing of affiliates with no description of characteristics or roles is not sufficient.

Higher Education Affiliate Institutions: All OSGC HE institutions have the opportunity to participate in the F/S

Program and all OSGC funded programs including the SCORE Program, NASA Center Internships, the UG Team Experience Program, the Student Symposium, the Faculty Research Award Program, and the Affiliate Faculty Research Incubator Program.

Eastern Oregon University (EOU) – Teacher education; Affiliate Rep: Chemistry.

George Fox University (GFU) - Liberal arts and science education; partner in the South Metro-Salem STEM Partnership (SMSP); Affiliate Rep: Mathematics and Physics.

Lane Community College (LCC) - MSI - Technology, continuing education, math and science; LCC Aviation Academy Offers Flight Technology and Aviation Maintenance Technology programs and a pilot certification program; Affiliate Rep: Physics/astronomy.

Linn-Benton Community College (LBCC) - Robotics, mechatronics, pre-engineering; Affiliate Rep: Engineering.

Oregon Coast Community College (OCCC) - Science, general studies; Affiliate Rep: Biology.

Oregon Institute of Technology (OIT) - Pro technical and health related fields; partner in the SMSP collaboration. Affiliate Rep: Computer Systems Engineering.

Oregon State University (OSU) – Lead institution - Engineering, earth, oceanic, and atmospheric science, radiation biology, ecology, biochemistry, pharmacy, and an aerospace minor; Affiliate Rep: Mechanical Engineering.

Pacific University (PU) – MSI - Liberal arts, health professions, and math/science education; Affiliate Rep: Physics.

Portland Community College Cascade Campus (PCC) – MSI - Adult education; Affiliate Rep: Portland Teachers Program

Portland Community College Rock Creek Campus (PCC) – MSI - Adult education including biology, veterinary, green energy, and aviation maintenance technology; Affiliate Rep: Science and geology.

Portland Community College Southeast Campus (PCC) – MSI – Aviation science, computer applications and office systems, and English for speakers of other languages; Affiliate Rep: STEM Center director.

Portland Community College Sylvania Campus (PCC) – MSI - Performing arts center, nationally recognized nursing and dental programs, and machine manufacturing technology program; Affiliate Rep: Physics.

Portland State University (PSU) – MSI - Internationally recognized for its urban planning, social work, environmental studies programs, and microgravity drop tower research and collaborations with NASA and the International Space Station; Affiliate Rep: Geology.

Southern Oregon University (SOU) – Criminology, natural sciences, environmental science; Affiliate Rep: Physics.

Southwestern Oregon Community College (SOCC) - Serves the southern part of the Oregon coast. Supports student achievement by providing access to lifelong learning and community engagement in a sustainable manner; Affiliate Rep: Physics.

University of Oregon (UO) - Teaching and research university with over 200 academic programs; manages Pine Mountain Observatory in Bend, OR; Affiliate Rep: Physics.

University of Portland (UP) – Education and engineering; Affiliate Rep: ME.

Western Oregon University (WOU) –Teaching Research Institute engaged in community-based projects; focuses on science and math education; partner in the SMSP collaboration; Affiliate Rep: Physics.

Informal Education Affiliates:

Evergreen Aviation & Space Museum – Home of the Spruce Goose; its mission is to inspire, educate, promote, and preserve aviation and space history; participates in Higher Education Programs; partner in the SMSP collaboration.

Oregon Museum of Science and Industry (OMSI) – Hands-on science and technology museum; planetarium and exhibit halls with focus on natural science, industry, and technology; houses the state's largest Science on a Sphere as well as smaller, mobile scale models. OSGC supports OMSI by providing letters of support to leverage the NASA network and obtain additional funding opportunities for the museum.

The Museum at Warm Springs – Tribal museum in central Oregon that brings three tribal communities together; partners with the local school district to offer hands-on science education utilizing expertise from within the community and around the state