

UNIVERSITY OF WASHINGTON
Seattle, Washington 98195

To: Office of STEM Engagement
National Aeronautics and Space Administration
Washington, D.C. 20546

Title of Project: Washington NASA Space Grant Consortium
Augmentation, 2021-2024

Type of Support Requested: Training Grant

Duration: June 1, 2021 to May 31, 2024 (3 yrs)

Annual Amount Requested: \$85,000

Total Amount Requested \$255,000

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Date: 09/15/2020

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1. Statement of Work and SMART Goals.

Due to reductions in the funding associated with the base award to the Washington NASA Space Grant Consortium, the support to projects relevant to Space Technology Mission Directorate (STMD) and to the Science Mission Directorate (SMD) were cut at the lead institution, University of Washington (UW), as well as cuts to long standing competitive collaborative efforts at Everett Community College (EvCC) and Northwest Indian College (NWIC).

With the augmentation for Year 1, we were able to re-establish these programs that will provide enhanced access to underrepresented minorities and provide workforce development for undergraduates with important skill relevant to STMD and SMD. The workforce development include experience in plasma technologies, and flight systems associated with high altitude balloons, supersonic rockets, and CubeSat designs.

This proposal for augmentation funds seeks to extend the efforts at EvCC and NWIC, and the workforce development projects into Years 2-4. In Year 4, we will focus on the development of high-altitude balloon systems that will be flown in conjunction with the national program to fly balloons into the annular eclipse Oct 2023 and the total eclipse in April 2024. EvCC will be supported by a subcontract while efforts by NWIC will be support by direct funding from the lead institution.

Augmentation of SMART Goals are as follows:

1.1. Workforce Development at the Lead Institution.

A.A. SMART Goal: To have internships and fellowships at the lead institution (UW): Yrs 2-3. Note this program will be suspended in Yr 4 to allow additional undergrads to participate in high altitude balloon launches associated with lunar eclipses – these efforts are described in SMART Goal A.D.

A.A. SMART Objective: Provide immersive experiences for undergraduate and graduate students in space technologies relevant to STMD and SMD.

A.A SMART Metric: Have at least one of the three participants to woman.

A.A SMART Target Number: One graduate student fellowship and five university internships.

A.A SMART Timeline: Applications will be open in March and offered by end of May. Students will participate in summer research programs summer. Results from internships and fellowships will be presented at a consortium wide poster session/reception at the start of each academic year.

This effort fulfills Space Grant Objective 2: solving Mission Directorate challenges, Space Grant Objective 5: encourages interdisciplinary programs that support research and development for NASA STEM, SG Objective 6: a diverse workforce, and SG Objective 7: innovative program advancing aerospace knowledge.

1.2. Bridge Program at Everett Community College.

A.B. SMART Goal: To support a bridge program for undergraduates at Everett Community College – Yrs 2-4

A.B. SMART Objective: Provide immersive experiences for rising freshman students

A.B. SMART Metric: Focus the program on low-income, first generation and/or underrepresented minorities.

A.B. SMART Target Number: Ten undergraduates.

A.B. SMART Timeline: Students enroll in program yearly in June; summer classes begin July each year; high altitude balloon launch end of Summer, rocket build in Fall; mentoring of students during the academic year.

This effort fulfills Space Grant Objective 5: encourages interdisciplinary programs that support research and development for NASA STEM, and SG Objective 6: a diverse skilled future STEM workforce.

1.3. Northwest Indian College Supersonic Rocket/Robotics Program.

A.C. SMART Goal: To support a supersonic rocket program at NWIC

A.C. SMART Objective: Provide immersive experiences for American Indian Undergraduates

A.C. SMART Metric: Have students participate in the First Nations Rocket launch and/or supersonic rocket launches planned for Brothers OR and/or Black Rock NV.

A.C. SMART Target Number: Five Native American undergraduates.

These efforts fulfill Space Grant Objective 2: solving Mission Directorate challenges, Space Grant Objective 3: state-wide network of organizations, SG Objective 4: cooperative programs amongst universities, aerospace industry, and NASA, SG Objective 5: encourages interdisciplinary programs that support research and development for NASA STEM, and SG Objective 7: innovative program advancing aerospace knowledge.

A.C. SMART Timeline: Students will be recruited in Summer 2020, and initial builds for low power systems occurs in Fall 2020. Competition systems for First Nations launches occurs, in Win 2021 with launches in Spring 2021.

1.4. High Altitude Ballooning Projects for Lunar Eclipses in 2023/24.

A.D. SMART Goal: To support student-built high-altitude balloons to capture the shadow of the moon during the 2023 Annular Eclipse and the 2024 Total Eclipse.

A.D. SMART Objective: Provide immersive experiences with a focus of supporting American Indian students to participate in eclipse balloon launches.

A.D. SMART Metric: Have students participate in the annual eclipse from a site in southeast Oregon and in the total eclipse in a site in southeastern Oklahoma.

A.D. SMART Target Number: We will support 25 students including 5 Native American students to the annular eclipse in 2023 and 5 students to the total eclipse in 2024.

These efforts fulfill Space Grant Objective 2: solving Mission Directorate challenges, Space Grant Objective 3: state-wide network of organizations, SG Objective 4: cooperative programs amongst universities, aerospace industry, and NASA, and SG Objective 5: encourages interdisciplinary programs that support research and development for NASA STEM.

**Washington NASA Space Grant College and Fellowship Program Extension
Budget Explanation, 06/01/2021 -05/31/2024**

Note:

Year 1 (Yr 1) in the budget corresponds to the 2nd yr of Space Grant Effort (Designated as SG2).
 Year 2 (Yr 2) in the budget corresponds to the 3rd yr of Space Grant Effort (Designated as SG3).
 Year 3 (Yr 3) in the budget corresponds to the 4th yr of Space Grant Effort (Designated as SG4).

Salaries

Key Personnel. The PI will collaborate with the instructor at Northwest Indian College of the developments in the supersonic rocket launches and robotic programs. This includes the PI working with the FAA to ensure all launches meet federal regulations, and providing safety inspections of student projects before they are launched. He is certified Level 3 in the National Association of Rocketry and provides oversight of all rocket motors built by students. He will also be lead on the balloon flight efforts for the eclipses with more than 10 years of experience in high altitude balloon flights.

The Associate Director will be on coordinating efforts for the additional workforce developments. This includes liaison with NASA for possible internship, the running of workshops for development and presentation of professional papers, and training in how to correctly develop a CV and apply for jobs/grad school. This effort will focus on working with underserved and underrepresented communities, particularly in rural WA.

The total funding requested for this effort is:

	Yr 1	Yr 2	Yr 3
	SG2	SG3	SG4
Senior personnel			
R. Winglee (PI)* 0.5 mos @ \$17,027/month	8,514	8,684	8,858
Associate Director** 1 mos @ \$6,500/month	6,550	6,614	6,815

No additional staff support is requested as the reporting requirements were fully supported in the base budget.

The support for a graduate student is to all the student to complete independent research during the summer. This will occur only in Yrs 1 and 2.

Undergraduate support is requested in Yr 3 to help facilitate the building of student payloads to be launched in the eclipse, and adding in the logistics of bringing students onto site for the balloon launches. A total of 200 hrs is requested for this effort.

Fringe Benefits

The current fringe rates used are actual rates in effect at 24.0% for faculty (*), 30.3% for professional staff (**), 22.4% for graduate students, and 22.2% for hourlies.

Participant Support.

Funding is requested for five full time student internships at \$5000 each. These internships will be split between Northwest Indian College and the University of Washington. Some of these internships may be split into part-time internships dependent on individual student circumstances. A total of \$25,000 is requested for this effort.

Travel

Funding is requested to attend each of the

Travel to NASA Mega PI meeting (1 person)

Mega PI Meeting

Airfare (East coast)	\$600
Per Diem, 3 days @\$200/day	\$600
Total Cost	\$1,200

Annular Eclipse, Southeast OR, Oct 2023

Vehicle rental (5 at \$300 each)	\$1,500
Food (25 for two days at \$45 each)	1,125
Total Cost	\$2,625

Total Eclipse, Southeast OK

Airfare (5 persons at \$500 each)	\$2,500
Car Rental (2 days)	200
Camping Site fees	200
Food (5 person , 2 days)	275
Total Cost	\$3,175

Supplies

The items under supplies are for the support of courses and hands-on experimental opportunities being supported by WSGC.

Supersonic Rocket program involves carbon fiber (@ \$120/yd, 9 yds) and rocket motors at \$80-200/motor, for 10 motors, misc. rocket parts (nose cone, parachutes) for \$100/system, for a total of \$4,280, in Yr 1 and \$4,067 in Yr 2 (with some costs savings from re-use of material from Yr 1).

Supplies for the balloon projects require helium at \$200/per K bottle, balloons at \$100/balloon; and GPS tracking system at \$200 for GPS tracking and flight computer @\$100 each. In year

It is expected that at least 50% of the equipment will be recovered each year so that in Yr 1 and we will be able to have 2 launches per year for a total cost of \$900 each year.

For the eclipses in Yr 3, we anticipate 2 practice launches and four balloon launches at the Annular Eclipse and four at the Total eclipse. Additional costs will include cameras and associated electronics for student experiments. A total cost of \$6000 is requested for these efforts with some savings provided by re-use of equipment from previous years.

Other Direct Funded Programs through Subcontracts include for each year

Everett Community College \$20,000

each year

Everett Community College is also providing \$20,000 of matching to keeping its leveling of matching consistent with all the existing Washington Space Grant affiliates.

The Other Direct cost is summer graduate student tuition (2 cr) at \$1704 for Yr 1 and \$1808 for Yr 2

Indirect Costs and Cost Share

The University of Washington's Facilities and Administrative (F&A) rate for training and educational activities is 37%, as per the current DHHS agreement, dated 7/21/17. However, the UW has agreed to waive a portion of the F&A costs for the base award. The amount requested is 8% of modified total direct costs (MTDC). The remaining 29% has been waived by the UW and this waiver is effective for the present augmentation since the funding goes into the base award.

MTDC is total direct costs less participant support costs (\$25,000), and graduate student tuition. Overhead is also only charged on the first \$25,000 of a subcontract. Since Everett Community College has a subcontract of \$20,000 for the first year of the grant (i.e. SG1) only \$5,000 for the augmentation is eligible for overhead.

PI Name: R. M. Wingee						NASA Proposal Number			
Organization Name: University of Washington, Seattle						TBD on Submit			
Proposal Title: WSGC Augmentation 2021-2024									
SECTION X - Budget									
Start Date:		End Date:		Budget Type:		Budget Period:			
6/1/2021		5/31/2022		Project		1			
A. Direct Labor - Key Personnel									
Name	Project Role	Base Salary	Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested	
R. M. Wingee	PI	17,027	0.00	0.00	0.50	8,514	2,043	10,557	
Associated Director	co-I	6,550	1.00	0.00	0.00	6,550	1,985	8,535	
0	0	-	0.00	0.00	0.00	-	-	-	
0	0	-	0.00	0.00	0.00	-	-	-	
0	0	-	0.00	0.00	0.00	-	-	-	
Total Key Personnel Costs								19,092	
B. Direct Labor - Other Personnel									
Number of Personnel	Project Role		Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested	
-	Postdoctoral Associate		0.00	0.00	0.00	-	-	-	
-	Other Professional		0.00	0.00	0.00	-	-	-	
1	Graduate Student		0.00	0.00	1.50	7,857	1,760	9,617	
-	Undergraduate Student		0.00	0.00	0.00	-	-	-	
1	Total Number Other Personnel						Total Other Personnel Costs		9,617
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A + B)								28,709	
C. Direct Costs - Equipment									
Item No.	Equipment Item Description						Funds Requested		
1	0						-		
2	0						-		
3	0						-		
4	0						-		
5	0						-		
6	0						-		
7	0						-		
8	0						-		
9	0						-		
10	0						-		
Total Equipment Costs								-	
D. Direct Costs - Travel									
							Funds Requested		
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)							1,200		
2. Foreign Travel							-		
Total Travel Costs								1,200	
E. Direct Costs - Participant / Trainee Support Costs									
							Funds Requested		
1. Tuition / Fees / Health Insurance							-		
2. Stipends							25,000		
3. Travel							-		
4. Subsistence							-		
5. Other							-		
Number of Participants / Trainees:		5	Total Participant / Trainee Support Costs				25,000		
F. Other Direct Costs									
							Funds Requested		
1. Materials and Supplies							5,180		
2. Publication Costs							-		
3. Consultant Services							-		
4. ADP / Computer Services							-		
5. Subawards / Consortium / Contractual Costs							20,000		
6. Equipment or Facility Rental / User Fees							-		
7. Alterations and Renovations							-		
8. Other							1,704		
Total Other Direct Costs								26,884	
G. Total Direct Costs									
							Funds Requested		
Total Direct Costs (A+B+C+D+E+F)								81,793	
H. Indirect Costs									
Cognizant Federal Agency			Indirect Cost Rate (%)	Indirect Cost Base		Funds Requested			
0			8.00%	40,089		3,207			
Total Indirect Costs						3,207			
I. Direct and Indirect Costs									
							Funds Requested		
Total Direct and Indirect Costs (G+H)								85,000	
J. Fee									
							Funds Requested		
Fee						-			
K. Total Cost									
							Funds Requested		
Total Cost with Fee (I+J)								85,000	

PI Name: R. M. Wingee						NASA Proposal Number		
Organization Name: University of Washington, Seattle						TBD on Submit		
Proposal Title: WSGC Augmentation 2021-2024								
SECTION X - Budget								
Start Date:		End Date:		Budget Type:		Budget Period:		
6/1/2022		5/31/2023		Project		2		
A. Direct Labor - Key Personnel								
Name	Project Role	Base Salary	Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested
R. M. Wingee	PI	17,368	0.00	0.00	0.50	8,684	2,084	10,768
Associated Director	co-I	6,681	1.00	0.00	0.00	6,614	2,004	8,618
0	0	-	0.00	0.00	0.00	-	-	-
0	0	-	0.00	0.00	0.00	-	-	-
0	0	-	0.00	0.00	0.00	-	-	-
Total Key Personnel Costs								19,386
B. Direct Labor - Other Personnel								
Number of Personnel	Project Role		Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested
-	Postdoctoral Associate		0.00	0.00	0.00	-	-	-
-	Other Professional		0.00	0.00	0.00	-	-	-
1	Graduate Student		0.00	0.00	1.50	8,015	1,795	9,810
-	Undergraduate Student		0.00	0.00	0.00	-	-	-
1	Total Number Other Personnel					Total Other Personnel Costs		9,810
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A + B)								29,196
C. Direct Costs - Equipment								
Item No.	Equipment Item Description						Funds Requested	
1	0						-	
2	0						-	
3	0						-	
4	0						-	
5	0						-	
6	0						-	
7	0						-	
8	0						-	
9	0						-	
10	0						-	
Total Equipment Costs							-	
D. Direct Costs - Travel								
							Funds Requested	
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)							1,200	
2. Foreign Travel							-	
Total Travel Costs							1,200	
E. Direct Costs - Participant / Trainee Support Costs								
							Funds Requested	
1. Tuition / Fees / Health Insurance							-	
2. Stipends							25,000	
3. Travel							-	
4. Subsistence							-	
5. Other							-	
Number of Participants / Trainees:		5	Total Participant / Trainee Support Costs				25,000	
F. Other Direct Costs								
							Funds Requested	
1. Materials and Supplies							4,967	
2. Publication Costs							-	
3. Consultant Services							-	
4. ADP / Computer Services							-	
5. Subawards / Consortium / Contractual Costs							20,000	
6. Equipment or Facility Rental / User Fees							-	
7. Alterations and Renovations							-	
8. Other							1,808	
Total Other Direct Costs							26,775	
G. Total Direct Costs								
							Funds Requested	
Total Direct Costs (A+B+C+D+E+F)							82,171	
H. Indirect Costs								
Cognizant Federal Agency			Indirect Cost Rate (%)	Indirect Cost Base		Funds Requested		
0			8.00%	35,363		2,829		
Total Indirect Costs						2,829		
I. Direct and Indirect Costs								
							Funds Requested	
Total Direct and Indirect Costs (G+H)							85,000	
J. Fee								
							Funds Requested	
							Fee	
							-	
K. Total Cost								
							Funds Requested	
Total Cost with Fee (I+J)							85,000	

PI Name: R. M. Wingee						NASA Proposal Number		
Organization Name: University of Washington, Seattle						TBD on Submit		
Proposal Title: WSGC Augmentation 2021-2024								
SECTION X - Budget								
Start Date:		End Date:		Budget Type:		Budget Period:		
6/1/2023		5/30/2024		Project		3		
A. Direct Labor - Key Personnel								
Name	Project Role	Base Salary	Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested
R. M. Wingee	PI	17,715	0.00	0.00	0.50	8,858	2,126	10,984
Associated Director	co-I	6,815	1.00	0.00	0.00	6,815	2,065	8,880
0	0	-	0.00	0.00	0.00	-	-	-
0	0	-	0.00	0.00	0.00	-	-	-
0	0	-	0.00	0.00	0.00	-	-	-
Total Key Personnel Costs								19,864
B. Direct Labor - Other Personnel								
Number of Personnel	Project Role		Cal. Months	Acad. Months	Summ. Months	Requested Salary	Fringe Benefits	Funds Requested
-	Postdoctoral Associate		0.00	0.00	0.00	-	-	-
-	Other Professional		0.00	0.00	0.00	-	-	-
-	Graduate Student		0.00	0.00	0.00	-	-	-
1	Undergraduate Student		0.00	0.00	0.00	3,415	758	4,173
1	Total Number Other Personnel					Total Other Personnel Costs		4,173
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A + B)								24,037
C. Direct Costs - Equipment								
Item No.	Equipment Item Description						Funds Requested	
1	0						-	
2	0						-	
3	0						-	
4	0						-	
5	0						-	
6	0						-	
7	0						-	
8	0						-	
9	0						-	
10	0						-	
Total Equipment Costs								-
D. Direct Costs - Travel								
							Funds Requested	
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)							7,000	
2. Foreign Travel							-	
Total Travel Costs								7,000
E. Direct Costs - Participant / Trainee Support Costs								
							Funds Requested	
1. Tuition / Fees / Health Insurance							-	
2. Stipends							25,000	
3. Travel							-	
4. Subsistence							-	
5. Other							-	
Number of Participants / Trainees:		5	Total Participant / Trainee Support Costs				25,000	
F. Other Direct Costs								
							Funds Requested	
1. Materials and Supplies							6,000	
2. Publication Costs							-	
3. Consultant Services							-	
4. ADP / Computer Services							-	
5. Subawards / Consortium / Contractual Costs							20,000	
6. Equipment or Facility Rental / User Fees							-	
7. Alterations and Renovations							-	
8. Other							-	
Total Other Direct Costs								26,000
G. Total Direct Costs								
							Funds Requested	
Total Direct Costs (A+B+C+D+E+F)								82,037
H. Indirect Costs								
Cognizant Federal Agency			Indirect Cost Rate (%)	Indirect Cost Base		Funds Requested		
0			8.00%	37,037		2,963		
Total Indirect Costs						2,963		
I. Direct and Indirect Costs								
							Funds Requested	
Total Direct and Indirect Costs (G+H)								85,000
J. Fee								
							Funds Requested	
Fee						-		
K. Total Cost								
							Funds Requested	
Total Cost with Fee (I+J)								85,000



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TO: Washington NASA Space Grant Consortium
Earth and Space Sciences, Box 351310
University of Washington
Seattle, WA 98195-1310
Tel: 206.543.1943; Email: nasa@uw.edu

TYPE OF SUPPORT REQUESTED: Subcontract

TITLE OF PROJECT: Everett Community College STEM Bridge Program

PRINCIPAL INVESTIGATOR: Kristine Washburn
Physics Instructor
2000 Tower St
Everett, WA 98201
(425) 388-9431
kwashburn@everettcc.edu

PERIOD OF PERFORMANCE: June 1, 2020– May 31, 2024

AWARD AMOUNT REQUESTED: \$20,000 per year

AMOUNT OF INSTITUTIONAL COST SHARE: \$20,000 per year

OFFICE TO BE CONTACTED REGARDING NEGOTIATION OF AWARD: Heather Bennett
Vice President of Institutional Effectiveness and Strategic Development
Resource Development Department
2000 Tower St
Everett, WA 98201
(425) 388-9253
hbennett@everettcc.edu

DATE: Aug 31, 2020

Kristine Washburn, Physics Instructor

OFFICIAL AUTHORIZED TO GIVE INSTITUTIONAL APPROVAL:

Heather Bennett - Aug 31, 2020 15:27 PDT

Heather Bennett, VP Institutional Effectiveness

Everett Community College
Washington NASA Space Grant
Scope of Work for grant years 2-5
6/1/21 – 5/31/25

STEM Bridge Program

Everett Community College (EvCC) will run a program for incoming students who wish to major in STEM fields. This program is overseen by PI Kristine Washburn and involves faculty and staff from across campus. Most of the recruitment work will happen in spring, preparation and some team building (including the retreat) will happen in summer, and the program itself will happen in fall. This program is meant to give incoming STEM students a holistic experience with STEM education by providing a cohort experience, intensive support in pre-college math, an intentional introduction to how college works, STEM project experience, and opportunities for exploration of careers and transfer options.

Financially, this program is based on a “last dollar” model, where financial aid covers the majority of student expenses (tuition, fees, books) and the program covers the few remaining items not covered. Additional expenses come from important extras such as the team building retreat and faculty/staff time spent on-boarding students.

Below is a timeline of work for the STEM Bridge Program with approximate dates and the people who are responsible for work. The timeline begins with work leading up to this grant year and concludes with the same work that will take place for next summer’s program.

Recruitment and On-boarding

The program pulls from three demographics for recruitment:

- Recent high school graduates looking to start at EvCC right away
- Students new to college planning to start at EvCC in summer or fall
- Transitional Studies students who started at EvCC doing high school, GED, or other pre-college level course work and are ready to transition to college level

Our eligibility criteria are:

- Washington state resident
- US Citizen
- Interested in majoring in STEM: Engineering, Computer Science, Math, Physics/Astronomy, Earth Science, Chemistry, or Biology (not health/medical science)
- Planning to attend EvCC
- Ability to commit to attending classes for fall quarter Mon-Fri 8am-1:30pm

The application for the bridge program will be posted on the college website starting in October of the previous year.

High school teachers and counselors will be contacted to help recruit seniors. Dean Katie Jensen will work with faculty in Transitional Studies to recruit students from their base. Other students (new to college but not recent high school grads) will be recruited from EvCC’s applicant base. The Institutional Research department will pull contact

information for students who have applied to EvCC with STEM majors as their intent. The PI will reach out to these students to recruit.

The PI and folks from the TRiO (Kesia Cenicerros) and MESA (Tia Pinzon) offices will collaborate to select students for the program using the various requirements for these programs and the quality of students' application essays.

Once students are selected, the PI or another staff/faculty member will work to on board them to the college. This includes walking the students through the college application, residency, financial aid, orientation, and placement. For students at high schools, we will go to the high schools 1-2 times to meet with students in person to help with these getting started steps. For other students, appointments will be made to meet on campus to ensure students get through the necessary on-boarding steps.

At the conclusion of on-boarding, students will meet with staff in TRiO and MESA for intake sessions. These programs form the base of the wrap around services students will receive as they progress at the college.

On-boarding and recruiting will conclude in May. The PI will reach out to publishers to inquire about textbook donations to offset program costs.

Welcome Night, Retreat

On the first day of open registration for fall (typically early June), we will have a Welcome Night to gather students and their families together. This will give everyone an overview of the program for the fall and beyond. With the help of TRiO and MESA staff and STEM faculty, students will get guidance on what classes to take and how to register for fall.

Before fall officially starts at the college, the students, staff, and faculty will go on a 3-day, 2-night retreat. The purpose of this retreat is primarily to build the cohort. We will do team building activities and work on our intentions for the fall and college. There will also be special experiences (hikes, boating, tours, etc) to teach earth science concepts in a field work format. Faculty and staff who will be interacting heavily with students as they progress at EvCC will be there to get to know students and build community with each other so we can work as a team to serve the students throughout the year.

Before classes start, students will be given a pre-assessment to gauge their knowledge and attitudes about college and STEM careers. The results will be gathered by the PI.

The fall quarter

Students in the Bridge program will take the following courses in the fall:

- STEM 101 - College Success
- STEM 298 - STEM Design Project
- Math 79 - Self-Paced Arithmetic and Algebra

Classes are stacked to take place from 8am-1:30pm Monday through Thursday. Fridays will be used for field trips to local industries and transfer institutions.

The STEM 101 course gives students an introduction to how college works and covers topics such as study skills and choosing a major. This course involves speakers from around campus and from industry. STEM 298 will be a project-based course. Students will design and build experiments to fly on a high altitude balloon. These will be launched

towards the end of the summer quarter. This class will also incorporate math assignments that apply the material from Math 79 in a real world setting. Math 79 is a computer-based math class where, in theory, students can work at their own pace and get through several levels of pre-college math. One of the biggest barriers to new STEM students, especially those from under-represented demographics, is getting to college level math. Instead of making this course independent work, for this specific section of this course we will group students by placement level and have them work together to get through the necessary pre-college math work. The goal for this class is for students to get through at least one level of pre-college math. Since more students place into Math 96 this should in theory get them to the college level.

EvCC is assigning specific teachers to these classes who are passionate about this program and helping students from these demographics. The Math 79 instructor will be adding in extra work and activities to engage these students and will be working closely with the STEM 298 instructor. Peer tutors may be used from the college's Tutoring Center to provide additional in-class support. The MESA program will hold Academic Excellence Workshops once a week where students will receive supplemental instruction from students 1-2 years ahead of them.

On Fridays there will be field trips. STEM faculty and TRiO and MESA staff will work together to organize and run these field trips. We will tour various local industries whose work aligns with students' career goals. We will also visit some transfer institutions so students can start planning for the next step in their academic careers.

End of fall

At the end of fall, focus group discussions will be held to get feedback from students about their experiences. A post-assessment will be given to measure changes in knowledge and attitudes about college and STEM careers. This data and participant demographic info will be gathered and shared with Washington NASA Space Grant for reporting purposes.

Additional High Altitude Ballooning

In addition to the high altitude balloon (HAB) work that happens as part of the Bridge program, there is HAB work that will happen throughout the year. The PI frequently mentors groups of students in the Physics 233 (capstone lab) class each quarter. Each quarter 1-2 groups designs, launches, analyzes, and presents on a HAB experiment as their quarter-long project. The PI spends several hours with the groups throughout the quarter mentoring and organizes and runs the launch. The Physical Sciences department frequently buys equipment for these launches and uses college-purchased helium to fill the balloons.

In addition to student projects, the Atmospheric Sciences 101 class (Weather) uses HAB data as part of one of their labs. The PI mentors whomever is teaching that class on HAB and runs the launch.

High Power Rocketry

The college has been doing high power rocketry for several years. The timeline below describes the events planned for the grant year cycle. This work takes place primarily outside of class as part of the STEM club. One of the project groups for STEM club is the Rocket Team. One faculty member (Joe Graber) serves as the advisor for the whole club. Two other faculty members (Kristine Washburn, Matt Fuentes) serve as mentors for the project work. Project work in rocketry has encompassed such activities as building HPRs from kits, designing and building HPRs from scratch, and designing, building, and testing experimental rocket motors for a more ambitious 20' rocket.

The club starts anew each fall, recruiting interested students. We do some HPR and attend a launch in eastern Washington each fall. Faculty mentor students in their work and attend the launch with them. Some students seek and get NAR certifications at these launches. In the winter we work on design and build of rockets from scratch to compete in the spring. Slowly throughout the year work on experimental motor designs happens.

Everett Community College
 Washington NASA Space Grant - Base Grant work timeline
 Grant years 2-5 (6/1/21-5/31/25)

STEM Bridge Program annual timeline

Date	Work	Responsible parties
October 1	Application posted online for Bridge program	Kristine Washburn
Early January	Program advertised to high school teachers and counselors	Kristine Washburn
Mid-March	Soft application deadline for high school applicants Selection of eligible candidates	Kristine Washburn, Kesia Cenicerros, Tia Pinzon
April – June	Recruitment of Transitional Studies (pre-college level) students from within EvCC On-boarding of non-high school students intending to start at EvCC in summer or fall	Katie Jensen Kristine Washburn
April – June	Intensive on-boarding of high school students <ul style="list-style-type: none"> • School visits • Follow up emails • Schedule TRiO/MESA intakes Contact publishers for book donations MESA/TRiO intakes	Kristine Washburn Kristine Washburn Tia Pinzon, Kesia Cenicerros
June 1	NASA grant year start	
Early June	Welcome Night, class registration	Kristine Washburn, Tia Pinzon, Kesia Cenicerros, support staff from TRiO, support faculty from STEM departments
Early September	Cohort-building Retreat	Kristine Washburn, Tia Pinzon, Kesia Cenicerros, support staff from TRiO, support faculty from STEM departments

Early September	Program pre-evaluation survey	Kristine Washburn
Mid-September	<p>Classes begin</p> <ul style="list-style-type: none"> • STEM 101 (intro to college and careers) • STEM 298 (HAB project class) • Math 79 (self-paced pre-college math class with intensive support) <p>AEWs/study groups start</p>	<p>STEM 101 - instructor TBD STEM 298 – Kristine Washburn Math 79 – instructor TBD</p> <p>MESA</p>
Mid-September through Early December	Weekly Friday field trips (at least colleges, at least 3-4 industries)	Kristine Washburn, Tia Pinzon, Kesia Cenicerros, support staff from TRiO, support faculty from STEM departments
Late November	HAB launch for STEM 298	Kristine Washburn
Early December	<p>Focus group discussions, end of program evaluation</p> <p>Reporting to NASA</p>	<p>Kristine Washburn</p> <p>Kristine Washburn</p>
October 1	Application posted online for 2021 Bridge program	Kristine Washburn
Early January	Program advertised to high school teachers and counselors	Kristine Washburn
Mid-March	<p>Soft application deadline for high school applicants</p> <p>Selection of eligible candidates</p>	Kristine Washburn, Kesia Cenicerros, Tia Pinzon
April – June	<p>Recruitment of Transitional Studies (pre-college level) students from within EvCC</p> <p>Recruitment of non-high school students intending to start at EvCC in summer or fall</p>	<p>Katie Jensen</p> <p>Kristine Washburn</p>

May 1	End of grant year reporting of all NASA funded activities	Kristine Washburn
May 31	NASA grant year ends	

HAB program timeline

Time	Event	People
Jan-Jun	HAB project mentoring for Physics 233 students (capstone lab) <ul style="list-style-type: none"> • Winter quarter <ul style="list-style-type: none"> ○ Mentoring: Jan-Mar ○ Launch: early March • Spring quarter <ul style="list-style-type: none"> ○ Mentoring: Apr-Jun ○ Launch: late May *depends on student interest	Kristine Washburn
Feb, May	HAB launch for Weather class (Atms 101) *depends on instructor interest	Kristine Washburn

High Power Rocketry program timeline

Time	Event	People
September	STEM Club starts for the year, rocket team forms; former Bridge participants highly encouraged to join	Kristine & Matt: Rocket team faculty leads Joe: STEM club advisor
Oct - Dec	Project development, design work	Students, leads
October	Possible fall launch (HPR)	Students, leads
Jan - March	Continued project work, build and test	Students, leads
Spring	Competition or other launch	Students, leads



2000 Tower Street · Everett, WA · 98201-1390 · 425.388.9100

August 24, 2020

Gwen Hallett
 Program Manager
 Washington NASA Space Grant Consortium

Dear Gwen,

The following constitutes the cost share funds provided by Everett Community College for the 06/01/21 – 05/31/25 project period (Years 2-5). Funds from Space Grant are being used to run the STEM Bridge Program and continue to grow EvCC’s rocketry and high altitude ballooning programs. Matching funds are being provided by EvCC to cover courses added specifically and customized for STEM Bridge Program students in the summer. Additional matching funds come from the time faculty spend on service work to the college that has been re-directed to mentoring colleagues and students on high altitude ballooning, parts for ballooning, and in overhead costs.

Budgeted cost share: \$20,000 per year

Actual cost share: \$20,000 per year

Type	Vendor	For	Cost
STEM Bridge Program			
TUITION	EvCC	Tuition not covered by financial aid	\$4,000
FEES	EvCC	Parking/bus passes for students	\$1,000
FEES	EvCC	Placement testing fees	\$260
FEES	EvCC	Netbook rental	\$100
TEXTBOOKS	Amazon	Textbooks	\$300
TEXTBOOKS	McGraw Hill	Access to ALEKS software for 24 students	\$960
RETREAT	TBD	Retreat - room and board	\$5,000
RETREAT	Facilitator	Professional facilitation at retreat	\$2,000
RETREAT	EvCC	Vans (6 van-days x \$80/day)	\$480
RETREAT	Michaels	Supplies	\$100
RETREAT	Costco	Snacks for hiking during retreat	\$100
SNACKS	Costco	Snacks for students between classes	\$1,000
SALARY	EvCC	Faculty salary for on-boarding students	\$3,600
Rocketry Program			
PARTS	Misc	Rocketry parts - on-going rocketry work	\$1,100

		TOTAL BUDGET AMOUNT FROM SPACE GRANT:	\$20,000
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Type	Vendor	For	Cost
STEM Bridge Program			
SALARY	EvCC	Faculty salary to teach STEM 298 (2 cr)	\$2,600
SALARY	EvCC	Faculty salary to teach MATH 79 (5 cr)	\$4,900
SALARY	EvCC	Faculty salary to teach STEM 101 (2 cr)	\$2,900
BENEFITS	EvCC	Benefits for faculty in the summer (30%)	\$3,255
HAB Program			
SALARY	EvCC	Faculty time to mentor rocketry work	\$450
PARTS	Misc	Equipment for HAB/STEM 298	\$250
Indirect Costs			
OVERHEAD	EvCC	Indirect costs (F&A, 40% of costs to EvCC)	\$5,645
		TOTAL MATCHING AMOUNT:	\$20,000

Sincerely,

Heather Bennett

Heather Bennett (Aug 31, 2020 15:27 PDT)

Heather Bennett
 Vice President of Institutional Effectiveness and Strategic Development

NORTHWEST INDIAN COLLEGE
X w l e m i E l h > T a l > N e x w S q u l



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August 19, 2020

Robert Winglee
Washington NASA Space Grant Consortium
University of Washington

Dear Professor Winglee,

I acknowledge that Northwest Indian College is receiving funding under NASA's Space Grant and I acknowledge the following responsibilities identified for me in this proposal: Funding of equipment for Robotics Club and Engineering projects, scholarships for students participating in Robotics Club and/or Engineering/Physics coursework, Travel to competitions/challenges as restrictions are lifted and salaries for full- and part-time faculty supporting Robotics Club and Engineering coursework.

I understand that the extent and justification of my participation as stated in this proposal will be considered during peer review in determining in part the merits of this proposal. For the purposes of conducting work for this proposal, my participating organization is Northwest Indian College.

Sincerely,

A handwritten signature in black ink that reads "Stephanie Bostwick".

Stephanie Bostwick
Pre-Engineering/Physics
Northwest Indian College

Table 4: WSGC Milestones

	Year Qtr	20- 21				21- 22				22- 23				23- 24			
		Sum Jun,Jul,Aug	Fall Sep,Oct,Nov	Win Dec,Jan,Feb	Spr Mar,Apr,May	Sum Jun,Jul,Aug	Fall Sep,Oct,Nov	Win Dec,Jan,Feb	Spr Mar,Apr,May	Sum Jun,Jul,Aug	Fall Sep,Oct,Nov	Win Dec,Jan,Feb	Spr Mar,Apr,May	Sum Jun,Jul,Aug	Fall Sep,Oct,Nov	Win Dec,Jan,Feb	Spr Mar,Apr,May
NASA Internships and Fellowships																	
NASA Internships (Consortium Wide)				Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit
		Student effort				Student effort				Student effort				Student effort			
Internships (SCC, UW, WWU, WU) including plasma propulsion efforts		"	"	Ap Opens - Student recruit	Ap Opens - Student recruit	"	"	Ap Opens - Student recruit	Ap Opens - Student recruit	"	"	Ap Opens - Student recruit	Ap Opens - Student recruit	"	"	Ap Opens - Student recruit	Ap Opens - Student recruit
		Student effort				Student effort				Student effort				Student effort			
Graduate Research Fellowships (UW, WSU) including plasma propulsion efforts			Ap Opens - Student recruit	Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit
		Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort
Studentships (Competitively Awarded)																	
Studentships (UW)				Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit			Ap Opens - Student recruit	Ap Opens - Student recruit
		Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort	Student effort
Studentships (BC,SCC,PC, UPS, CWU, WU)			Ap Opens - All Year recruitment	Student effort	Student effort	Student effort	Ap Opens - All Year recruitment	Student effort	Student effort	Student effort	Ap Opens - All Year recruitment	Student effort	Student effort	Student effort	Ap Opens - All Year recruitment	Student effort	Student effort
Studentships (PSC)				Ap Opens				Ap Opens				Ap Opens				Ap Opens	
Bridge Program (EvCC)		Student effort	Student effort	Ap Opens - Student recruit	Ap Opens - Student recruit	Student effort	Student effort	Ap Opens - Student recruit	Ap Opens - Student recruit	Student effort	Student effort	Ap Opens - Student recruit	Ap Opens - Student recruit	Student effort	Student effort	Ap Opens - Student recruit	Ap Opens - Student recruit
Group Projects																	
Supersonic Rocket Student Research Program			Recruit Students	Prelim Design	Fly System		Recruit Students	Prelim Design	Fly System		Recruit Students	Prelim Design	Fly System		Recruit Students	Prelim Design	Fly System
NWIC College Rocket Program	Recruit Students	Prelim Design	Build System	Fly System		Recruit Students	Prelim Design	Build System	Fly System	Recruit Students	Prelim Design	Build System	Fly System	Recruit Students	Prelim Design	Build System	Fly System
High Altitude Balloon Research Program			Recruit Students	Fly System			Recruit Students	Fly System			Recruit Students	Fly System			Recruit Students	Fly System	
CubeSat Development and Plasma Thrusters		Recruit Students	Prelim Design	Subsys Develo		Subsys Develo	Recruit Students	Prelim Design	Subsys Develo	Subsys Develo	Recruit Students	Prelim Design	Subsys Develo	Subsys Develo	Recruit Students	Prelim Design	Subsys Develo
Professional Development Student Challenges		Work-shop	Work-shop				Work-shop	Work-shop			Work-shop	Work-shop			Work-shop	Work-shop	
Eclipse Ballooning												Recruit Students		Prelim Design & Practice Flights	Annular Eclipse	Total Eclipse	

Enhanced programs supported by augmentation

New programs supported by augmentation