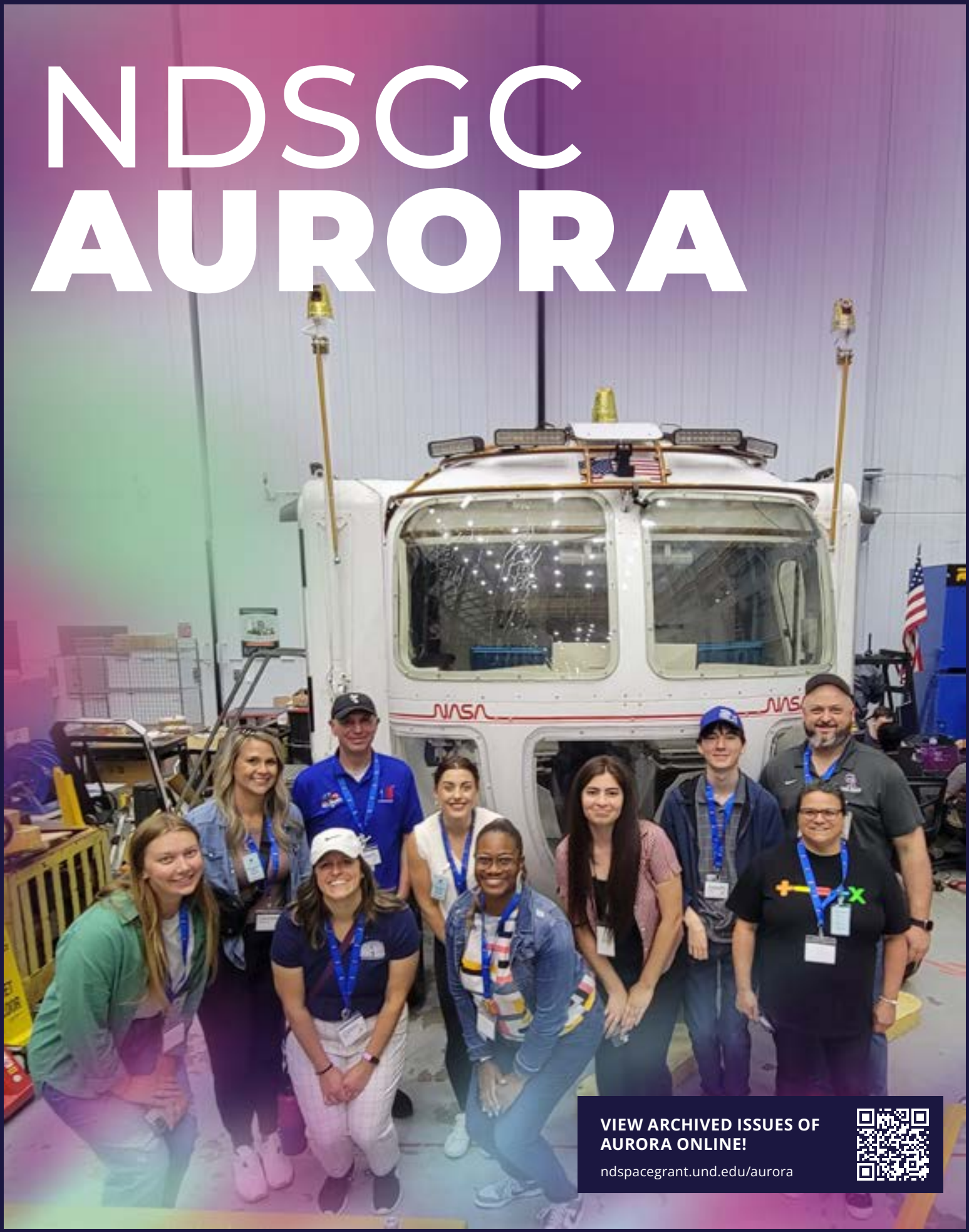
NDSGC
AURORA



VIEW ARCHIVED ISSUES OF AURORA ONLINE!

ndspacegrant.und.edu/aurora

NORTH DAKOTA SPACE GRANT CONSORTIUM | 2025 EDITION

DIRECTOR

Dr. Caitlin Milera

caitlin.milera@UND.edu

701.777.4856

ASSOCIATE DIRECTOR

Tori McIntosh

tori.mcintosh@UND.edu

701.777.4161

ASSISTANT DIRECTOR

Laurie Salander

laurie.salander@UND.edu

701.777.4897

OFFICE MANAGER

Grecia Flaws

grecia.flaws@UND.edu

701.777.6819

CONTACT US

University of North Dakota

Clifford Hall Room 270

4149 University Avenue Stop 9008

Grand Forks, ND 58202-9008

Cover photo: Teachers at the 2024 IDEAS Educator Workshop tour NASA Johnson Space Center in Houston, TX.

NOTES FROM THE

Director

2024 was another standout year for the NDSGC, due to the incredible work and unwavering passion of the core team, STEM Ambassadors, ND affiliate representatives, national Space Grant and NASA network, industry and education partners, and awardees across the state.

Flipping through this year's edition of the Aurora, you will find evidence of talented students launching balloons during total solar eclipses (p. 48 - 49), educators exploring the "Mars Yard" at NASA's Johnson Space Center while designing K-12 lesson plans (p. 52 - 53), student fellows conducting cutting edge research in areas such as: hypervelocity impacts, computational astrophysics, and hybrid rocket propulsion (p. 12 - 16), teachers establishing STEM libraries in their local schools (p. 24), STEM Ambassadors launching rockets and designing parachutes with young students and their families (p. 44 - 47), and faculty members revising college courses to best prepare students for the STEM workforce (p. 18 - 19). Each of these students, educators, and faculty members' efforts directly contribute to the NDSGC's goal of engaging all in NASA and STEM.

The NDSGC achieved some serious record-breakers in 2024. We hired the largest team of STEM Ambassadors yet, 20 college students who also engaged the highest number of community members (9,581) this past year (p. 28 - 31). The NDSGC also supported 23 NASA interns (again, the highest number to date!) who conducted research in areas such as: aerodynamics, communications, and molecular biology (p. 6 - 11). And 16 college students, faculty, and educators were funded to attend the Space Exploration for Educators Conference (SEEC) in Houston TX, the highest on record for ND (p. 54 - 55). Well done to all!

As we usher in 2025, I am reminded of the amazing work that our team continuously accomplishes through perseverance, collaboration, and lifting others up. We are beyond grateful for the strong support of our ND affiliate network, our NASA Space Grant colleagues, and our all-star STEM Ambassadors. Thank you for your collaborations, enthusiasm, patience, and creative ideas throughout the year. We could not have done it without you. Together, we are #NASAinND.

Thank you for your continued support,

Caitlin Milera

Caitlin Milera
Director, NDSGC

WHAT IS SPACE GRANT?

NASA initiated the National Space Grant College and Fellowship Program, also known as Space Grant, in 1989. Space Grant is a national network of colleges and universities. These institutions are working to expand opportunities for Americans to understand and participate in NASA's aeronautics and space projects by supporting and enhancing science and engineering education, research and public engagement efforts. The Space Grant national network includes over 950 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies. These affiliates belong to one of 52 consortia in all 50 States, the District of Columbia, and the Commonwealth of Puerto Rico. The 52 consortia fund fellowships and scholarships for students pursuing careers in science, technology, engineering, and mathematics, or STEM, as well as curriculum enhancement and faculty development. Member colleges and universities also administer pre-college and public service education projects in their states.

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MEET NDSGC'S AFFILIATES!

ndspacegrant.und.edu/about/affiliate-members

Top left: Participants trace eclipse photos and design creations using Ultraviolet beads.

Bottom Left: From L to R: Dr. Marissa Saad, former NDSGC Deputy Director, Washington Space Grant Deputy Director Kam Yee, and NDSGC Director Dr. Caitlin Milera.

Top center: The NDSGC Team tours the Stanford University School of Engineering.

Bottom center: Dr. Milera poses with Washington Space Grant Consortium and fellow UND Space Studies alumna, Kam Yee, at the Meeting.

Right: The NDSGC team and STEM Ambassador Hailey Olson received a tour of the U.S. Capitol thanks to Congressman Kelly Armstrong, now ND Governor.

Top Left: NDSGC Assistant Director Laurie hosts a STEM Ambassador panel.

Bottom Left: Dr. Yee Han Chu and STEM Ambassadors Parker Johnson and Thomas Iken listen to a presenter.

Right: NDSU's Design Build Fly competition team presenting to the audience.

SPACE GRANT **Meetings**

DC NATIONAL MEETING

The NDSGC Team attended the National Council of Space Grant Directors' Meeting in Washington, D.C. in Feb and March 2024. STEM Ambassador Hailey Olson also joined and participated in the conference's newly established student track. The NDSGC Team presented a hands-on session at the conference where participants completed hands-on activities related to the Total Solar Eclipse. Dr. Milera also led a Kahoot with conference attendees in her role on the NASA Space Grant Executive Committee.

NATIONAL MEETING

The NDSGC Team attended the National Council of Space Grant Directors' Meeting, hosted by the Hawaii Space Grant Consortium in September 2023. They learned about collaborative STEM research and education projects on a national level. Dr. Milera presented on the 2023 NASA OSTEM Better Together Meeting in her role on the National Organizing Committee.

NASA BETTER TOGETHER MEETING

The NDSGC Team attended the NASA Office of STEM Engagement (OSTEM) "Better Together" Meeting in California in Nov. 2024. The conference focused on building collaborations among Space Grant Consortia, NASA EPSCoR jurisdictions, Minority University Research and Education Project (MUREP) awardees, and NASA's NextGen STEM awardees. Dr. Milera developed a "Scavenger Hunt" networking app opportunity for attendees to develop these partnerships throughout the conference. The team also participated in a tour of Stanford University while in attendance.

CAPITAL HILL MEETINGS

The NDSGC Team and STEM Ambassador Hailey Olson visited with all ND legislative offices while in DC. Thank you to the offices of Senator Hoeven, Senator Cramer, and Representative Armstrong for hosting the team as we discussed program successes and highlights throughout the past year. Thank you also to Representative Armstrong's Office for the Capitol Hill tour.

AFFILIATE **Involvement**

SPRING AFFILIATE'S MEETING

The NDSGC held its annual Affiliate Meeting May 3rd-4th, 2024. The annual affiliates meeting provided a dynamic and enriching opportunity for program participants, awardees, and stakeholders to come together and reflect on the impact of funding platforms and internships. This year's event featured a series of program overviews, panel discussions, and interactive sessions designed to share experiences and offer valuable insights for future awardees.

Each of the key funding platforms was represented by a panel of experts who answered a series of thoughtful questions. The panelists shared their personal journeys, discussing the skills, experiences, and talents they gained through their awards and internships. Their stories offered both inspiration and practical advice for current and future recipients, helping them understand how to make the most of these opportunities. Among the key takeaways were strategies for navigating challenges, maximizing internship experiences, and leveraging funding for long-term career growth.

In addition to the panel discussions, attendees participated in a gallery walk designed to explore the range of programs and funding opportunities offered by the organization. This interactive session allowed participants to provide feedback and discuss ways to improve outreach and effectiveness in reaching more awardees. Insights from the gallery walk focused on enhancing program accessibility, streamlining application processes, and fostering stronger community engagement.

Overall, the meeting served as a powerful reminder of the impact that well-designed funding platforms and internships can have on both personal and professional development. With the valuable input from attendees, the event also paved the way for future improvements that will help empower even more individuals to achieve their goals and contribute to their fields.

As the affiliates' meeting concluded, there was a shared sense of optimism about the future of these programs and the continued growth of the community they support. The lessons learned from this year's event will undoubtedly shape the direction of future initiatives, ensuring that more awardees can benefit from the transformative power of these opportunities.

NASA

Internships

THE NDSGC IS COMMITTED TO SUPPORTING NORTH DAKOTA STUDENTS IN NASA INTERNSHIPS.

Students who are US citizens and enrolled at NDSGC-affiliated institutions will be able to engage in authentic, hands-on learning experiences that involve real-life problem-solving.

BRETT BELSCHOFF

Spring 2024 | University of North Dakota
Internship Location: NASA Glenn Research Center

"My semester at NASA not only gave me invaluable technical skills, but it also gave me lifetime connections to aerospace technology experts. The support of NDSGC helped me to get selected for not only one but two NASA internships."

KRISTIAN ANDERS HAUGEN

Fall 2023 | University of North Dakota
Internship Location: NASA Glenn Research Center

"This internship through NASA's Langley Research Center has given me a multitude of professional tools regarding research and compilation. I am grateful for the opportunity provided to me by the NDSGC that has allowed me to learn and apply my knowledge in a professional environment."

JOSEPH KASTI

Fall 2023 | North Dakota State University
Internship Location: NASA Armstrong Flight Research Center

LAINA BEHRENBRINKER

Spring 2024 | University of North Dakota
Internship Location: NASA Ames Research Center

"The support from the North Dakota Space Grant Consortium allowed for my return to NASA Ames Research Center, and for this, I am incredibly grateful! This experience improved my research capabilities and technical skill set, which will be hugely beneficial as I pursue a Master of Science in mechanical engineering."

JOSEPH KASTI

Spring 2024 | North Dakota State University
Internship Location: NASA Armstrong Flight Research Center

CALEB STROM

Spring 2024 | University of North Dakota
Internship Location: Jet Propulsion Laboratory

"The internship allowed me to complete research I was doing for a previous internship that I can incorporate into my dissertation research."

ETHAN JORDAN

Spring 2024 | University of North Dakota
Internship Location: NASA Ames Research Center

"This was a wonderful experience and I am grateful I was able to contribute to a project and publication. I got to work on the project from the beginning, witnessing and assisting with developing the methodology and process from start to finish. Our paper proposal in particular was really a great experience that helped me develop professional skills like presentation and conveying information to an audience. This has given me more guidance and understanding moving forward as I hope to write a thesis for my Master's."

FELICA HASELEU

Summer 2024 | Educator at Erik Ramstad Middle School
Internship Location: NASA Ames Research Center, Educator Intern

LINDSEY ROGERS

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

"I am incredibly thankful to NDSGC for the opportunity to intern with NASA this summer, where I was able to apply my academic knowledge, learn new lessons, and make valuable connections. This experience has greatly enhanced my skills and prepared me for future challenges as I continue my academic journey to completing my Master's in Space Studies."

JENNY MULHOLLAND

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

"This internship changed my perspective on how aviation safety is used in the aerospace industry. I got to see how much work goes on behind the scenes to ensure missions are safe for the public. I also was able to work with professionals in my field who gave me the independence to make a dent in this project. I am incredibly grateful for this opportunity and the support from ND Space Grant that made this possible."

ZOE BUNDY

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

"I greatly appreciate the generosity of the NDSGC, and their investment in our generation of STEM leaders. My opportunities & horizons were greatly expanded from this opportunity and I would encourage other students to apply!"

HALEY BOLES

Summer 2024 | University of North Dakota
Internship Location: NASA Ames Research Center

"My internship at NASA, funded by the North Dakota Space Grant Consortium, provided an invaluable opportunity to explore and evaluate cutting-edge DNA extraction methods. This hands-on experience not only deepened my understanding of molecular biology but also equipped me with practical skills essential for advancing space biology research. I am immensely grateful for the support that made this transformative experience possible."

AMANDA CURATTI

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

"This internship not only transformed my perspective on the aviation industry but also expanded my understanding of the opportunities that aviation and aerospace, particularly through NASA, have to offer."

BRETT BELSCHOFF

Summer 2024 | University of North Dakota
Internship Location: NASA Headquarters

"My opportunities with NASA have provided me lifelong skills and friends, as well as illuminating my path forward in my career."

CHEYENNE HARRISON

Summer 2024 | University of North Dakota
Internship Location: NASA Glenn Research Center

"This internship gave me such a great experience, allowing me to expand my understanding of the work that goes into research and experiments to produce accurate results. Thanks to the support of the North Dakota Space Grant Consortium, I was able to participate in this wonderful opportunity and gain many skills that will help me in my education and career!"

NASA INTERNSHIPS CONT.

CASIA STEINHAUS

Summer 2024 | University of North Dakota
Internship Location: NASA Goddard Institute for Space Studies

"I am so grateful to the ND Space Grant for providing me with the opportunity to apply my knowledge and skills to solving an actual problem. This opportunity helped me understand the direction I want to pursue in my career."

MANNA KHAN

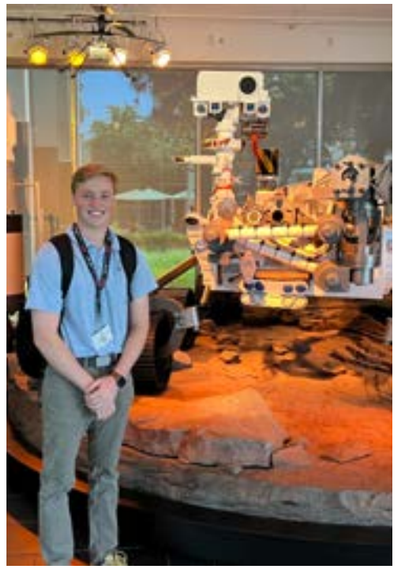
Summer 2024 | University of North Dakota
Internship Location: NASA Headquarters

"Through this NASA internship with the Greenhouse Gas Center, I had the opportunity to explore critical climate solutions through innovative research and collaborate with organizations focused on addressing climate challenges. Thanks to the support of NDSGC, I could fund my tuition and continue advancing my doctoral studies."

CASSANDRA TAGGART

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

"Being a part of this NASA internship has been a dream. With this internship, I learned about what is Knowledge Management and the importance of capturing the knowledge from those around us. This internship also allowed me to expand my skills sets and understand the complexity of tools provided to me. I'm forever grateful for the North Dakota Space Grant Consortium for supporting me and allowing me to have this amazing experience!"



TURNER PERSON

Summer 2024 | North Dakota State University
Internship Location: Jet Propulsion Laboratory

"I feel honored and proud to have gotten this opportunity as this internship has given many valuable experiences that are only available outside of a classroom, this internship allowed me to connect and collaborate with the top researchers, mentors, and other interns from around the country and was truly an overall amazing experience."

KAELA LUCKE

Summer 2024 | University of North Dakota
Internship Location: Goddard Institute for Space Studies

"The 2024 Summer Internship as well as my past Fellowship/Internship with NASA GISS has been a dream come true. It has shown me how my research can be applicable and help the real world and has inspired me to focus my future career on Applied Agricultural Climate modeling and research while trying to educate and help the farmers become more sustainable. Thank you NDSGC, this would not have been possible without your help."

NICHOLAS HOLTE

Summer 2024 | University of North Dakota
Internship Location: Langley Research Center

"During my time in the Aerothermodynamics Branch at Langley, I grew significantly as an engineer and a person in general.

This internship allowed me to apply concepts learned in the classroom and on the job to an interesting and meaningful project.
I came out of this internship feeling more independent and confident in myself. I am grateful that I was able to improve so much both professionally and personally in just ten weeks. Thank you, NASA and NDSGC, for this incredible opportunity."

TALIA FRAHM

Summer 2024 | North Dakota State University
Internship Location: NASA Headquarters

"Thanks to the North Dakota Space Grant Consortium (NDSGC), I've had the incredible opportunity to intern at NASA. This experience has been transformative, allowing me to work alongside industry experts, and develop my technical and communication skills. I'm thrilled to continue my journey with NASA this fall under the NDSGC and eager to learn, grow, and make a meaningful impact as I move forward!"

JOHN STURM

Summer 2024 | University of North Dakota
Internship Location: NASA Langley Research Center

STUDENT RESEARCH
Fellowships

The NDSGC Student Research Fellowships are available to students completing NASA-relevant research in a STEM field under the guidance of a faculty mentor. Awards are offered throughout the fall, spring, and summer semesters to undergraduate and graduate students at NDSGC affiliate colleges. All NDSGC Student Research Fellowships are awarded on a competitive basis.

FALL 2023

JOHN MERILA

University of North Dakota
Mechanical Engineering

"The NDSGC Fellowship opportunity has given me the ability to pursue a more ambitious thesis project than would otherwise be possible. With the support I will be able to have a full scale C2M2 to demonstrate the truss outfitting capabilities of the system and publish the findings in several publications."

JACOB YATES

University of North Dakota
Aerospace Sciences

"This Space Grant fellowship was clutch in helping me procure time and materials for hypervelocity impact testing at the Texas facility (HVIL). Without it, I could not complete my research for my dissertation. The results of these tests may end up being used by NASA's Artemis program. That's what makes Space Grant such a key enabler for space research and its potential impact on future missions."

LUCA BERETTA

University of North Dakota
Electrical Engineering

"I am very grateful for the ND Space Grant Program enabling me to explore the use of electrical hardware! They were amazing people to work with!"

PARKER JOHNSON

University of North Dakota
Physics and Astrophysics

"I am incredibly grateful for the invaluable experience I gained through the NDSGC. The opportunity to explore the realm of Computational Astrophysics has been nothing short of amazing. This hands-on experience has solidified my passion for the field, and I am excited to take the next step in my academic journey by pursuing a Ph.D. starting in the fall of 2024."

THOMAS IKEN

University of North Dakota
Mathematics and Physics

"I am very thankful for the opportunity provided to me through the North Dakota Space Grant Consortium. I was able to create and pursue my project, obtaining relevant skills to help me in future research endeavors. I learned how to conduct research, write grant proposals and progress reports, as well as work collaboratively with others. The knowledge I gained through the North Dakota Space Grant Consortium Research Fellowship will be a pivotal step in my career as a material scientist.**"**

EMILY BALLUF

North Dakota State University
Mechanical Engineering

"This opportunity has been a dream come true! Ever since I was little, I've always wanted to be a rocket scientist. I found rocket propulsion systems very fascinating. So being granted a Student Research Fellowship allowed me to contribute to the aerospace industry and work on Hybrid Rocket Propulsion research at NDSU. I am very grateful for this experience and I look forward to working in the aerospace industry!"

SPRING 2024

KAELA LUCKE

University of North Dakota
Atmospheric Sciences

"The 2024 Spring Fellowship with NASA GISS has been a dream come true. It has shown me how my research can be applicable and help the real world and has inspired me to focus my future career on Applied Agricultural Climate Modeling and Research while trying to inspire the next generation and help farmers become more sustainable. Thank you NDSGC, this would not have been possible without your help."

SEAN MCCLOAT

University of North Dakota
Aerospace Sciences

"'A good dissertation is a done dissertation.' The support I received from NDSGC has been invaluable to completing my degree — and this award in particular was essential in finally *finally* getting over the finish line. I would not be graduating without this support."

JOHN MERILA

University of North Dakota
Mechanical Engineering

"I am grateful for the fellowship funding that has allowed me to focus my time on the completion of my master's thesis. I am developing a truss climbing robot for terrestrial demonstrations that can validate in-space outfitting requirements."

SUMMER 2024

LYDIA LAFEAN

North Dakota State University
Mechanical Engineering

"The NDSGC Student Fellowship granted me the opportunity to further my research into the combustion characteristics of a hybrid rocket. Through this experience, I was able to greatly develop my skills as an undergraduate researcher and gain long-lasting connections with my mentor! Words cannot describe how grateful I am to have taken part in this program."

JOSEPH RYAN LEMKER

University of North Dakota
Mechanical Engineering

"With the support of the North Dakota Space Grant Consortium and the research fellowship, I have been fortunate to gain experience outside of the normal classroom. I was able to pursue a topic that I am interested in, and learned how to better approach problems where the initial assumptions and processes have not been given. In other words, I was given the opportunity to use the knowledge I have gained thus far to pursue an issue where the answer is not already known."

CALEB STROM

University of North Dakota
Aerospace Sciences

"This award gave me time improve my dissertation this summer and prepare for presenting at the Geological Society of America Meeting this fall."

SUMMER 2024

WILLIE RODEN

North Dakota State University
Mechanical Engineering

"Thank you to the North Dakota Space Grant Consortium for awarding me a Summer Research Fellowship! I experienced what a career in research might look like, and worked on a project for which I am passionate about. This experience inspired me to pursue similar opportunities in the future."

LAINA BEHRENBRINKER

University of North Dakota
Mechanical Engineering

"I am forever grateful to the NDSGC, whom I to thank for access to incredible learning experiences. This research gave me the opportunity to push my own boundaries and gain in-depth knowledge on hypersonics."

COLE HOOD

University of North Dakota
Atmospheric Sciences

"Compiling a sounding deemed to be representative is quite the undertaking. Often during this process, my mindset was to continually diagnose my code until I reached my next error."

DID YOU KNOW THE NDSGC HAS A STUDENT RESEARCH FELLOWSHIP BRIDGE PROGRAM?

The Fellowship Bridge Program is a flexible entry-level research program, designed to introduce student transfers into the research at their new program.

Students who've earned an undergraduate degree and are starting a new program at a NDSGC-affiliate program can apply for funding to complete entry-level STEM research projects. This program is open to students who are enrolling in a higher degree program at the same, or a different, NDSGC affiliate institution (A.S. to B.S., B.S. to M.S., B.S. to Ph.D., or M.S. to Ph.D.). Students interested in applying are strongly encouraged to contact the NDSGC to help with mentor pairings. Students with little or no research experience are encouraged to apply.

https://ndspacegrant.und.edu/college-students/internships-and-fellowships/bridge-program.html

INDUSTRY

Internships

NDSGC-sponsored industry internships support college students working with local mentors at a STEM-relevant company or laboratory to complete research projects, and to help develop STEM skill sets. Specific qualities that make a good industry partnership include, but are not limited to, real-world STEM experiences and hands-on and experiential learning. These internships do not involve NASA centers and focus on local industries.

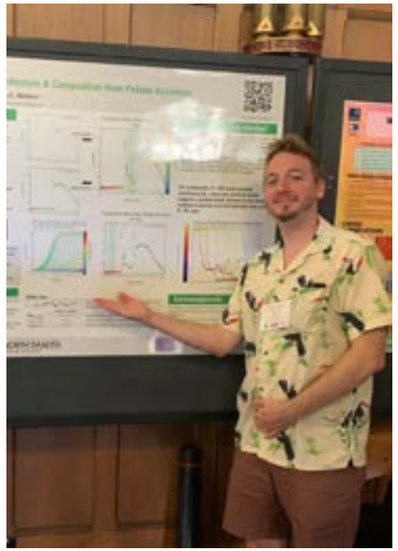
FALL 2023

SEAN MCCLOAT

University of North Dakota
Aerospace Sciences
Location: Space Telescope Science Institute

"My internship at the Space Telescope Science Institute was entirely enabled by the support from the ND Space Grant Consortium. In many ways, the opportunity is what I have been working towards for all of graduate school. The Institute is where they operate the JWST, and working there during these early days when the telescope is flying was thrilling - like being at Cape Canaveral during the Apollo program. I will likely leverage the experience and network I developed into future opportunities.

SPRING 2024



SEAN MCCLOAT

University of North Dakota
Aerospace Sciences
Location: Space Telescope Science Institute

"The time spent working at STScI was a slam dunk – the work was challenging and satisfying, and I made many connections personally and professionally will extend towards future work opportunities."

SUMMER 2024

THOMAS IKEN

University of North Dakota
Physics
Location: Northrop Grumman

"My time at Northrop has been a truly innovating adventure. I have been able to bridge the gap between higher education and industry, building connections and friends to last a lifetime!"

SUMMER FACULTY

Fellowships

Summer Faculty Fellowships are designed to assist faculty in creating or revising a college-level course that is part of the Science, Technology, Engineering, or Mathematics (STEM) field and is NASA-relevant. This program directly supports one of the goals of NASA Education, and the overall goal of this program is to increase the exposure of college students to NASA and NASA research.

GENEVIEVE KAHRILAS

Chemistry, Minot State University

CHEM 127 - Chemistry of the Environment

"The support from this grant provided me with the opportunity to delve into learning styles and resources that I otherwise would not have had time to explore. Not only did this result in a great new Environmental Chemistry course for students, but helped me learn tools that will improve the quality of my instruction in all of my science classes."

JUN LIU

Electrical Engineering & Computer Science, University of North Dakota

CSci 555 - Computer Networks

"I highly appreciate the support of this NGSGC fund. This award has supported me in making progress in teaching and in research. For teaching, I have been able to make extensive literature studies on EVPN/VXLAN data center network technology for updating the version of course CSci 555. For research, I have completed and submitted one NSF proposal with a requested amount of more than $900K over a duration of 4 years. The experience of completing this award is fantastic in allowing me to have made an extensive exploration of the state-of-the-arts of the EVPN/VXLAN data center network technology."

HENRY BAANG

Mathematics, Nueta Hidatsa Sahnish College

MA 095 - STEM Algebra Beginning Concepts

"It was a great learning experience completing the award. The Summer Faculty Fellowship is a wonderful project for me to come up with an Intermediate Algebra course with improved content and method to better serve ND students."

MARCOS FERNANDEZ-TOUS

Space Studies, University of North Dakota

SpSt 570 - Nuclear Space Propulsion

"Completing this award has been an exciting journey, allowing me to contribute meaningfully to the field of aerospace propulsion."

STACI DREYER-LARSON

Science, Valley City State University

BIOL 151 - General Biology II

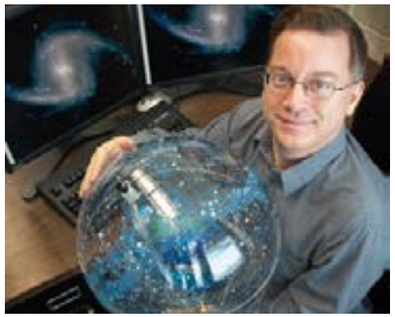
"While it was a lot of work, I'm proud of the labs that I have edited and rewritten. I am excited to implement these labs in Spring 2025. I think my students will enjoy these labs and look forward to doing more hands-on activities in lab."

TEATHER SUNDSTROM

Science, Valley City State University

CHEM 116 - Introduction to Organic and Biochemistry

"This summer faculty fellowship allowed me time and motivation to update and renovate my most fun Gen Ed course. Thank you!"



WAYNE BARKHOUSE

Physics & Astrophysics, University of North Dakota

PHYS 110/110L - Introductory Astronomy

"In this golden age of space exploration, the advancement of astronomy and astrophysics has been spearheaded by NASA and its support for basic science. This requires that astronomy courses and textbooks need to be periodically updated, and that is a good thing!

JANELLE GREEN

Biology, Minot State University

BIOL 111 - Concepts of Biology

"A lot of thought, effort, and time went into the production of this course and this award made it possible. It will provide our online students with another science course option that was not available before at Minot State University."

LINDSEY KIECKER

Chemistry, Valley City State University

CHEM 115 - Introductory Chemistry

"Redesigning the Introductory Chemistry course at VCSU was a large undertaking made possible through the NDSGC Summer Faculty Fellowship. This allowed me to spend time enhancing the course to allow for individualized exploration of chemistry concepts specific to the student. This course is available for all VCSU students to fulfill general education lab science credits, and upon completion I am confident students will see the chemistry that surrounds them every day."

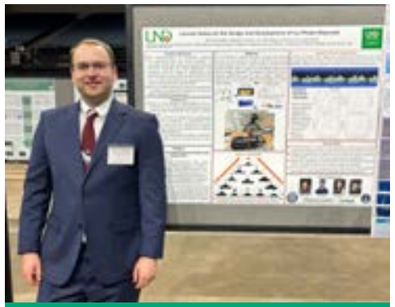
STUDENT

Travel Grants

The NDSGC provides travel grants to students at affiliate schools who will present papers or posters at conferences throughout the U.S.

SPRING 2024

MATT MALUSKY



DERRICK SEUBERT

PARKER JOHNSON

48TH INTERNATIONAL CONFERENCE AND EXPO ON ADVANCED CERAMICS AND COMPOSITES (ICACC2024)

ALEXANDER THORNE

University of North Dakota | Biomedical Engineering

MATT MALUSKY

University of North Dakota | Mechanical Engineering

DERRICK SEUBERT

University of North Dakota | Mechanical Engineering

JOHN STURM

University of North Dakota | Mechanical Engineering

"The travel grant I received through NDSGC was instrumental in my attendance of the ICACC conference, which transformed my interest in the field of materials science, and helped to cement my selection of this as my chosen career field."

HUNTER HENDRICKSON

University of North Dakota | Mechanical Engineering

"I am so grateful to have had the opportunity to attend the International Ceramics and Composites Conventions. My knowledge of ceramics and composites has greatly increased. New applications of such materials were exposed to me with methods I had never considered before. The ability to network with and learn from both domestic and international professionals is something I will not take for granted!"

243RD MEETING OF THE AMERICAN ASTRONOMICAL SOCIETY

PARKER JOHNSON

University of North Dakota | Physics

"I am immensely grateful for the support provided by the ND Space Grant Program, enabling me to attend the AAS Conference. The knowledge, skills, and connections developed during this experience will significantly influence my ongoing research and prove invaluable as I work towards my future goal of pursuing a Ph.D. in Astrophysics."

AIAA SCIENCE AND TECHNOLOGY FORUM AND EXPOSITION

GRAHAM LARSON

North Dakota State University | Mechanical Engineering

BIG SKY SPORTS MEDICINE CONFERENCE

CONNER MELDRIM

Minot State University
Exercise Science & Rehabilitation (Pre-Med)

NDSGC IMPACT

"Participating in the North Dakota Space Grant Program is helping advance my education for a brighter future. Being enrolled in a STEM program at a tribal college is giving me the opportunity and eligibility requirements needed for financial support through NASA and UND to help fund my education. This support has helped me focus on my studies without the weight of financial burdens and hardships. Participating in the NASA program has also helped me explore, shape, and direct my educational and career goals. I look forward to participating in NDSG program next semester and continue exploring our mass universe, implementing technology and science in my education and career with the help of NASA's support.

Thank you, for helping impact my life."

- Sonya Williams, Conkdeska Cikana Community College, 2023 NDSGC Scholarship Awardee

"The North Dakota Space Grant Consortium has profoundly impacted me through their STEM Ambassador program. Since August 2021, I have worked as a STEM Ambassador, creating and presenting engaging STEM lessons for K-12 classrooms and collaborating with fellow Ambassadors to coordinate outreach events across North Dakota. This role allowed me to develop critical skills in communication, teamwork, and leadership, while also deepening my passion for STEM education. Most importantly, this experience helped me achieve a lifelong dream of securing an internship with NASA in the summer of 2024, demonstrating the immense value and opportunities the program has provided in shaping my educational and career journey."

- Cassandra Taggart, University of North Dakota, 2021-2024 NDSGC STEM Ambassador, 2024 NASA Intern

Mini Grants

AFFILIATE MINI GRANTS

Affiliate Mini Grants are available to NDSGC affiliate representatives who are hosting or participating in research or education events related to STEM and/or NASA. Affiliate Mini-Grants may also be applied towards college-level initiatives, such as materials funding for STEM courses and research, or travel funding for college students to participate in field research related to their STEM courses. Faculty or staff must be directly involved in the programming to be eligible for a Mini Grant.

JOHN WEBSTER

Fall 2023 | Minot State University
Geology

Experiences with Introductory Geology in the Field

"Support of the NDSGC was very helpful in carrying out a geologic field trip on which first-year students not only learned a lot, but also developed close relationships with some fellow incoming students."

JOSEPH PETTIT

Fall 2023 | Minot State University
Biology

How does a plant with toxic rewards entice pollinators to visit?

"We have collected plant material including corms, leaves, flowers, pollen, and nectar to test for the presence of the reported toxin. We observed flowers during anthesis for visitation. We have collected visitors to document visiting species. We have collected pollen samples from floral visitors to document how specialized their floral preferences are. This grant process has been an easy and enjoyable experience."

MARCOS FERNANDEZ-TOUS

Spring 2023 | University of North Dakota
Space Studies

Rocket Test UND (ROTUND) -3

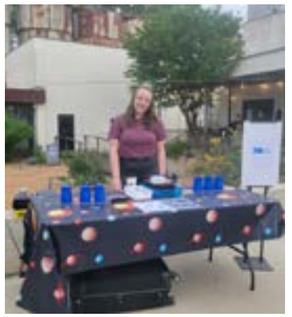
"NDSGC's invaluable support to space science and education in North Dakota is allowing researchers to start big projects in carefully designed steps. We expect to see rockets flying over our State soon!"

MARCOS FERNANDEZ-TOUS

Spring 2024 | University of North Dakota
Space Studies

Ablative thrusters for minisatellite applications

"Our propulsion laboratory's research endeavors owe their success to the invaluable support provided by the NDSGC. It is through these mini-grants that we are empowered to aspire to ambitious goals. We extend our sincere gratitude to all those who contribute to making this achievement possible."



HOPE BURDOLSKI

Spring 2024 | ND Gateway to Science

Science Mill & NDGTS Solar Eclipse Collaboration

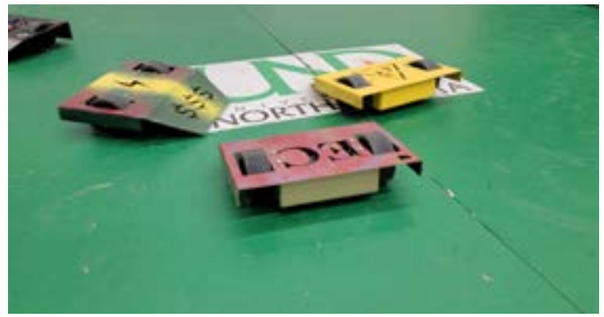
"The mini-grant allowed me to have a once-in-a-lifetime experience. I got to interact with people from around the country and share about the amazing things that North Dakota has to offer while educating about the importance of safety and science for the solar eclipse."

MARCOS FERNANDEZ-TOUS

Summer 2024 | University of North Dakota
Space Studies

Leveling up the quality of technological courses in Space Studies Department

"The book I was able to purchase with this Mini Grant is an invaluable tool to share with our students when they are starting defining their area of research. I truly hope that there will be similar opportunities in the future to continue expanding this knowledge, which is the ultimate goal of Academia."



ANDREW DAHLEN

Summer 2024 | University of North Dakota
Mechanical Engineering

BatSuBot Robotics Camp

"I think it was a great success; the students had a lot of fun. We're looking forward to growing this program to have more students involved, to show them what it's like to be an engineer and whet their appetite. The whole point of the summer camp is just to build that appetite and interest in STEM and engineering fields."

EDUCATOR MINI GRANTS

Educator Mini Grants are open to North Dakota formal and informal educators who are teaching, hosting, or participating in research or education initiatives related to STEM and/or NASA. Educator mini grants may be applied to, but are not limited to: STEM-relevant field trips, materials and resources that enhance the STEM classroom, and participation in NASA-relevant or STEM challenges at local, regional, and national levels.

LISA RAMEY

Fall 2023 | North Star/ Cando

Increasing Engagement in Programming and Technology

"The North Dakota Space Grant program has had tremendous impact on student engagement and interest in STEM. Funding for this mini-grant made it possible for me to improve accessibility of STEM activities at North Star and provided tools to create a very engaging and student-led environment for project-based and personalized learning. Thank You!

SONIA SKORHEIM

Spring 2024 | Horizon Middle School

Diverse Learners, Bright Future

"I just want to extend gratitude from myself and my students for providing us with such wonderful resources."

ELIZABETH LOEKS

Spring 2024 | Power Lakes Public School

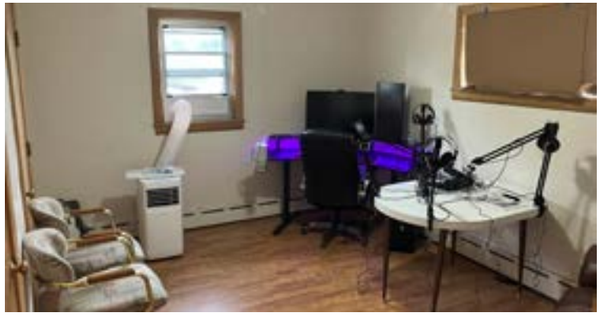
Powers Lake First Tech Challenge Club Funding

"This grant provided funding so my low-income students could travel to meets without financial hardship. We are so thankful for the support!"

LIBBY ALMY

Summer 2024 | Golva Elementary School

How To Train Your Robot



SARA LYNN SCHINDLER

Summer 2024 | Harvey High School

Harvey Penny House Improvement Project

TYLER LARSON

Summer 2024 | Dakota Prairie High School

Harvey Penny House Content Lab

"The Harvey community and the surrounding areas will benefit from this lab for years to come. Having a cutting edge content lab in a rural North Dakota town is a unique asset that will allow for creative outlets community members might not have had access to else wise. Students will be able to use this lab in conjunction with tech and art classes to further their education."

JENNIFER TRADER

Summer 2024 | Discovery Elementary School

Elementary Robotics Opportunities for All

"The educator mini grant has allowed our elementary school robotics program to purchase the necessary materials and equipment needed to continue our VEX robotics programming. We will start the new season with new game elements and more pieces for students to use to design and build their robots!"

SHAUN PRINCE

Summer 2024 | Lake Region State College

College STEAM for Kids

JESSICA ENSTAD

Summer 2024 | Jefferson Elementary

MakerSPACE

Thanks to the North Dakota Space Grant, our K-6 elementary students are begging to learn more about space exploration. I had a group of students ask me the other day, what grant are you going to get us next?! Thank you so much for providing these mini-grants. For projects like this, I would have normally had to slowly purchase out of my pocket over time. You have no idea what difference you all make. Thank you!!

STUDENT MINI GRANTS

Student Mini Grants are available for undergraduate and graduate students who are completing STEM- or NASA-relevant research that directly affects their thesis or dissertation (or a similar culminating project that enables students to graduate). Student mini-grants are awarded each semester and may include materials funding.

JOSEPH REILLY

Fall 2023 | University of North Dakota
Aviation

"This opportunity of funding has allowed me to go well beyond the normal bounds of thesis work and attain new levels of discovery and challenges that before my Master's were only a daydream. I would like to thank all those involved who make this funding possible and hope more students can make use of this process."

JOHN MERILA

Fall 2023 | University of North Dakota
Mechanical Engineering

"The NDSGC Mini-Grant provided funding to build a larger C2M2 robot and truss test articles than otherwise possible. The increased scale of the robot allows for more practical demonstrations providing more information regarding the capabilities of the system."

JOHN MERILA

Spring 2024 | University of North Dakota
Mechanical Engineering

"I am grateful for the mini-grant funding I received for the construction of a truss climbing robot being built for my master's thesis. The opportunity has allowed me to build a more advanced robot than I otherwise would have been able to, making the project even more successful."

JOHN MERILA

Summer 2024 | University of North Dakota
Mechanical Engineering

"The funding I received from the North Dakota Space Grant Mini-Grant has allowed me to purchase components to develop a robot for my master's thesis which I will be able to continue using into my PhD. The robot I'm developing is showcasing capabilities for outfitting structures in space."

ASCEND Grant

The Affiliate Synergistic and Collaborative Engagements across ND (ASCEND) program is designed to promote, develop, and expand NASA research and projects within North Dakota. These grants, which may be research- or teaching-based, are defined by goals within NASA's Mission Directorates.

Paul Zent, Visitors Guide at NDGTS, guides a user through their flight simulator experience.

GATEWAY TO SCIENCE- AERONAUTICS FLIGHT SIMULATOR EXHIBIT

North Dakota's Gateway to Science received the 2024 ASCEND grant. With the award, Gateway to Science built an exhibit around a STEMPilot Edustation allowing young audiences the chance to experience a flight simulator.

"NDGTS is honored to provide an incredible experience for guests to connect to NASA's mission and technical workforce through the ASCEND grant with our new flight simulator exhibit. The addition of the flight simulator allowed NDGTS to expand its aeronautics educational opportunities and the response from the community is tremendous. Families mention they are purchasing an annual family membership due to the new exhibit."

LEARN MORE ABOUT THE ASCEND GRANT

https://ndspacegrant.und.edu/affiliate-members/seed-grants.html

STEM AMBASSADOR

Program

TO PROMOTE SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) ACROSS NORTH DAKOTA, THE NDSGC ESTABLISHED THE STEM AMBASSADOR PROGRAM.

Available for undergraduate and graduate students at all NDSGC affiliate schools.

STEM Ambassadors conduct hands-on activities to North Dakota students, families, and communities. This can include K-12 classroom visits and informal education events such as library engagement events, family nights, and science festivals.

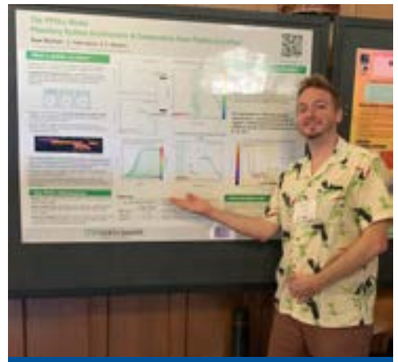
PARKER JOHNSON
University of North Dakota | Physics with emphasis on Astrophysics and Computational Physics

IAN BAUER
University of North Dakota | Bachelor's of Aeronautics/ Aviation Safety and Operations

LAINA BEHRENBRINKER
University of North Dakota | Mechanical Engineering

JACOB STANLEY
University of North Dakota | Mathematics (B.S.)

KATE KESLER
University of North Dakota | Chemistry (Pre-Medicine)



SEAN MCCLOAT
University of North Dakota | PhD - Aerospace Sciences

JOSH LAKODUK-ERNST
North Dakota State University |Mechanical Engineering

CHEYENNE HARRISON
University of North Dakota | Mechanical Engineering with Aerospace Focus

JENNY MULHOLLAND
University of North Dakota | Aviation and Safety Operations

MADDALENE GUTHRIE
University of North Dakota | Commercial Aviation

JACQUELYN EMERY
University of North Dakota | Commercial Aviation

GRACE HERON
University of North Dakota | Commercial Aviation & Sociology

BRETT BELSCHOFF
University of North Dakota | Aerospace Engineering

RYAN LEMKER
University of North Dakota | Mechanical Engineering

AMANDA HIGGINBOTHAM
University of North Dakota | Commercial Aviation and International Studies

HAILEY OLSON
University of North Dakota | Commercial Aviation

THOMAS IKEN
North Dakota State University | Physics and Mathematics

FAITH HAUCK
Minot State University | Biology BA

CASSANDRA TAGGART
University of North Dakota | Atmospheric Sciences and Middle-Level Education

AMANDA CURATTI
University of North Dakota | Commercial Aviation

BECOME A

STEM AMBASSADOR!

LEARN MORE ABOUT THE STEM AMBASSADOR PROGRAM AND APPLY TODAY!

https://ndspacegrant.und.edu/college-students/stem-ambassadors.html

AWARDED
Scholarships

LEARN MORE!
https://ndspacegrant.und.edu/college-students/scholarships/pearl-i-young.html

PEARL I. YOUNG SCHOLARSHIP

The NDSGC established the prestigious Pearl I. Young Scholarship for a student pursuing a STEM degree at the University of North Dakota. This $2500 award honors Pearl I. Young and her many contributions to the NACA, NASA, and STEM fields.

HALEY BOLES

HALEY BOLES

Haley Boles is a Master's of Space Studies student at the University of North Dakota where she focuses on analyzing human factors and performance in Martian analog missions, particularly in relation to space crop cultivation systems. Haley is a 4-time NASA intern and with skills in interdisciplinary collaboration, botany, and research support, Haley is recognized for her meticulous attention to detail and calm demeanor. Her commitment to excellence extends beyond the laboratory, demonstrated through her involvement in various academic societies and mentorship programs. After graduation, Haley hopes to transition into a career as a research scientist in space agriculture, aiming to contribute to innovative solutions for sustainable food production on Earth and in space.

JAYDEN GUIDINGER

Jadyn Guidinger is a junior at the University of North Dakota studying chemical engineering. She has internship experience as a Process Engineering Intern at Pfizer and as an Environmental Engineering Intern at the North Dakota Department of Environmental Quality. On campus, Jayden is the president of Engineers Without Borders and an active member of the Society of Women Engineers, Tau Beta Pi, and the American Institute of Chemical Engineers. She is also part of the Grand Challenges Scholars Program at UND and an undergraduate peer mentor.

JAYDEN GUIDINGER

NASA LANGLEY AND VIRGINIA SPACE GRANT CONSORTIUM TRIP

In April 2024, NDSGC Director, Dr. Milera was invited to give the Keynote Address at the NASA Langley Research Center's Diversity, Equity, Inclusion, and Accessibility (DEIA) Day. She presented her research on the life and legacy of Ms. Pearl Irma Young.

Learn more about the trip, and Pearl I. Young, on pages 38-39!

LEARN MORE!
https://ndspacegrant.und.edu/college-students/scholarships/lillian-goettler.html

LILLIAN GOETTLER SCHOLARSHIP

The NDSGC established the prestigious Lillian Goettler Scholarship for a student pursuing a STEM degree at North Dakota State University. This $2500 award honors Lillian Goettler and her many career contributions in STEM.

EMILY MIKHAIL

EMILY MIKHAIL

"I am a sophomore at North Dakota State University majoring in Mechanical Engineering and Physics, and pursuing a Mathematics minor. Last year, I was introduced to the Grand Challenges Scholars Program, which has led me to wonderful opportunities to grow as a student, a professional, and as a person. Within the program, I've focused on research in our Mechanical Engineering department, where I'm part of a hybrid rocket design and research team. Being a part of this project has been one of the most incredible experiences of my life. I lead the data analysis and computations for the team, and I've gained invaluable knowledge beyond my greatest expectations. There is something especially exciting about witnessing the classroom topics firsthand in a research setting. Having that hands-on experience brings the curriculum content to life and spotlights the bigger picture of engineering. My heart has always been in engineering, particularly in aerospace, and these experiences have only deepened that passion. I hope to pursue an MS in Aerospace Engineering and continue working in the field professionally. Receiving this scholarship is an immense honor, and I'm very grateful that it allows me to further my academic and professional pursuits in the industry I love!"

BRENNA SOLHEID

BRENNA SOLHEID

"I am a junior at North Dakota State University studying Mechanical Engineering with a minor in Spanish. From a young age I knew I wanted to make a difference in people's lives, and coming to NDSU has provided me with both personal and professional opportunities to do just that. Currently, I am involved in the Society of Women Engineers, Engineering Ambassadors, and Blue Key National Honor Society. These organizations have allowed me to give back to the community and share my love for both STEM and NDSU. Through SWE, I have been able to volunteer at outreach events and teach students of all ages about engineering. Seeing the excitement and interest on the students' faces has sparked my passion for outreach and inspiring young students and women to pursue a STEM career. With engineering ambassadors, I get to interact with prospective students and provide insight and support that helps students confidently say yes to an engineering career. In addition, I enjoy spending my free time volunteering and raising money for NDSU, NDSU students, and the FM community through Blue Key.
After graduating from NDSU, I plan on pursuing a career in either the biomedical or agricultural field. I value continuous learning and have always wanted to use my knowledge, skills, and passions to better the lives of others. I am excited to improve people's lives through my work and to continue inspiring the next generation of engineers. I am incredibly honored to receive the Lillian Goettler scholarship and truly appreciate NDSGC for investing in my education and future endeavors."

TRIBAL COLLEGE SCHOLARSHIPS

The American Indian Scholarship is designed to encourage and support tribal college students interested in pursuing STEM degrees and continuing their education. To assist students in their goals, the North Dakota Space Grant Consortium offers five scholarships, each worth $2500, to students at the five tribal colleges in North Dakota: United Tribes Technical College, Sitting Bull Community College, Nueta Hidatsa Sahnish College, Turtle Mountain Community College, and Cankdeska Cikana Community College.

DERIK BULL
Cankdeska Cikana Community College | Pre-engineering

SHADLYNN SEVERANCE
Nueta Hidatsa Sahnish College | Environmental Sciences

KENNEDY PLEETS
Sitting Bull College | Environmental Sciences

SARAH SWAIN
Turtle Mountain Community College | Biology

JENNIFER FRAGUA
United Tribes Technical College | Pre-engineering

AFFILIATE UNDERGRADUATE SCHOLARSHIP

Each academic year, the NDSGC provides scholarship funding to affiliate schools. Scholarship recipients are selected by faculty and staff at their home institution. Students must have an excellent academic record and be majoring in a STEM field.

BISMARCK STATE COLLEGE

Hannah Lundeby
Luke Fischer
Evan Pena
Elin Williams
Kenna Mutschelknaus
William Bachman
Kylar Hall

CANKDESKA CIKANA COMMUNITY COLLEGE

Bryson Burdick
Christopher Cook
Dani Lohnes
Elia Paulson
Sonya Williams

DAKOTA COLLEGE AT BOTTINEAU

Lexie Nelson
Haley Hahn
Madison Thompson
Rhett Wolfley
Monica Yoder
Sara Smith

DICKINSON STATE UNIVERSITY

Natalie Lile
Jewel Olson
Griffin Obrigewitch
Kori Nagel
Madison Beckler
Jonathan Schendel
Jace Friesz
Anna M. Beer
Ashlee Potter
Clay Prell
Kiley Hubby
Uchechukwu Johnfisher Uchem

LAKE REGION STATE COLLEGE

Magdalynn Bender
Jenay Boucher
Brooklyn Fortier
Morgan Leas
Deryk Thomas
Breanna Vosberg
Hannah Bearden
Brayden Ehnert
Madison Knoke
Mckenna Samuelson
Crucible Steinman
Jacob Warnke
Alexa Holth
Lindsey Nyhagen
Matthew McCollum

MAYVILLE STATE UNIVERSITY

Abigil Cox
Alexis Nesheim
Chloe Jacobson
Gerrit Bjornstad
Grace Burrel
Hesse Halverson
Kaitlin Ensign
Kaydee Koistinen
Micah Nagel
Kayla Rocholl
Mollie Robbins
Riley Wass
Samanta Passa

MINOT STATE UNIVERSITY

Jacob Jensen
Karen Robinson
Quinn Sullivan
Brendon Watson
Cayden White
Toby Zietz
Faith Hauck
Connor Meldrim
Cole Barta
Gunnar Kozlowitz
Jordyn Knipper
Lehi Kharadia
Hannah Mackeprang

NORTH DAKOTA STATE COLLEGE OF SCIENCE

Kaylee Stegora
Carl Ekre
Jarod Drobny
Masyn Olson
Dallas Brandt
Joel Kavaloski
Hattie Dockter
Abigail Johnson
Kolby Differding
Blake Miller
Marley Wheeler
Zachary Benson
Jada Griffin
Jason Everett

NUETA HIDATSA SAHNISH COLLEGE

Pierre Pretty Weasel
William Murdock
Kacey Murdock
Christopher Anderson JR
Staci Holmevig

SITTING BULL COLLEGE

Jestin Long Feather
Wacantkiya Eagle
Shang Agard

TURTLE MOUNTAIN COMMUNITY COLLEGE

Seth Belgarde
Izabella Baker-Schilken
Madelyn Braunberger
Nathan Conley
Wayne Jr Martell
Christina James
Aleigha Lenoir
Quentin Brien
Harleigh DeCoteau
Aaliyah Selburg
Nick Dionne
Bradley Sr Vivier
Grant Birkland
Meadow Poitra
Thea Malaterre
Alicia Houle

UNITED TRIBES TECHNICAL COLLEGE

Audrey Hall
Wakiya Plenty Chief
Mary Gagnon
Nicole Gipp
Jaxsyn Delorme
Amara Martinson
Sara Fruetel
Dominque Miner
Zariah June
Lauryn Clown

VALLEY CITY STATE UNIVERSITY

Kathleen Vetter
Kolten Barnhard
Claire Bauer
Cassidy Sanderson
Anna Erickson
Jamie Burkle
Tucker L Johnson
Amber Kologi
Gavin Rodning
Arthur Harris
Alex Stoterau
Morgan Freije
Zachary St. Aubin
Lorenzo Luchi
Abby Herl
Charles Humann
Hailey Roberts
Ethan Walsvik

WILLISTON STATE COLLEGE

Anna Stow
Dylan Hlad
Ava Keicher
Thomas Overturf
Alexis Stahlman
Margaret Huettl

TRANSFER SCHOLARSHIP

The NDSGC Transfer Scholarship aims to support a student's continuing education efforts in advancing their degree. To assist in their transition, the North Dakota Space Grant Consortium offers the Transfer Scholarship, each worth $2,500. Students must have completed a 2-year degree, a certificate program, or 24 credits at a post-secondary school before transferring to a NDSGC-affiliated four-year school to pursue a STEM degree.

JOZEY GOODALL
A.S. from Lake Region State College to B.S. at University of North Dakota

Major: Environmental Studies, Biology, Education

CASIA STEINHAUS
A.S. from Lake Region State College to B.S. at University of North Dakota

Major: Physics/Astrophysics and Mathematics

TANNER VEO
A.S. from United Tribes Technical College to B.S. at United Tribes Technical College

Major: Environmental Science and Research

JADEN BOARDMAN
A.S. from Lake Region State College to B.S. at University of North Dakota

Major: Science/Forensic Science

JAYLEN ANDERSON
A.S. from Lake Region State College to B.S. at Minot State University

Major: Radiological Sciences

JOSHUA LAKODUK-ERNST
A.S. from Bismarck State College to B.S. at North Dakota State University

Major: Mechanical Engineering

ERNEST SIERS
A.S. from Aaniih Nakoda College to B.S. at Sitting Bull College

Major: Education

NORTH DAKOTA VISION SERVICES/SCHOOL FOR THE BLIND SCHOLARSHIP

Students studying STEM at any the NDSGC's 16 affiliate schools and who qualify for services from the NDVS/SB may apply.

https://ndspacegrant.und.edu/college-students/scholarships/ndvssb.html

ESCAPE FROM ASTRONAUT TRAINING

THE NDSGC'S ESCAPE FROM ASTRONAUT TRAINING IS A SERIES OF CROSS-DISCIPLINARY ASTRONAUT TRAINING CHALLENGES, ENDING IN A VIRTUAL SCAVENGER HUNT THROUGH UND'S INFLATABLE LUNAR MARS ANALOG HABITAT.

Each activity is North Dakota standards correlated. If you are a North Dakota educator and would like copies of educator and student guides, along with a set of NASA posters sent to your classroom, please contact the NDSGC team.

TINYURL.COM/
NDSGCESCAPE

NASA Langley and Virginia Space Grant Consortium Trip

IN APRIL 2024, NDSGC DIRECTOR, DR. MILERA WAS INVITED TO GIVE THE KEYNOTE ADDRESS AT THE NASA LANGLEY RESEARCH CENTER'S DIVERSITY, EQUITY, INCLUSION, AND ACCESSIBILITY (DEIA) DAY.

She presented her research on the life and legacy of Ms. Pearl Irma Young, who "raised hell" in STEM fields, in part by being the first woman to hold a technical role at NASA Langley starting in 1922. To honor Pearl's work, the NDSGC awards an annual scholarship bearing her name.

During the visit, NASA Langley personnel also graciously led tours of their facilities for the NDSGC Director, Assistant Director, and their guests. The NDSGC team also attended the Virginia Space Grant Consortium Student Research Conference and learned of the amazing work being done by their students!

Thank you to NASA Langley and the Virginia Space Grant Consortium for the invitations to attend and participate!

In Dec. 2024, Dr. Milera published an article on Pearl in "The Conversation". Scan the QR code or visit https://tinyurl.com/Pearl-Dec-24 to read it!

READ THE STORY ON UND TODAY!

https://blogs.und.edu/und-today/2024/06/remembering-nasas-pearl-young-und-19-1919-that-is/

A UND graduate, Pearl Young became the first female technical employee of the National Advisory Committee for Aeronautics (NACA), which evolved to become today's NASA. She is shown here in NACA's Langley Instrument Research Laboratory, circa 1929. NASA photo.

FROM UND TODAY:

Remembering NASA's Pearl Young, UND '19 — 1919, that is

Physics, Math and Chemistry major was first female technical employee at NASA's precursor agency

Today, UND Aerospace is known for its aerospace educational programs. But UND started playing a role in the aerospace industry many decades before that, as shown by UND alumna Pearl Young beginning her career more than a century ago with NACA: the National Advisory' Committee for Aeronautics, the precursor to NASA.

Pearl Young was originally from Taopi, Minn., and graduated from UND in 1919 with majors in Physics, Mathematics and Chemistry. In 1922, Young became the first female technical employee at the NACA.

"She was the only woman in a technical position for over a decade," said Caitlin Milera, director of the North Dakota Space Grant Consortium and research assistant professor at UND. "She started as a physicist and moved around through different divisions within the NACA."

As Young continued her career at the NACA, she saw flaws in the way that technical reports were made — they lacked consistency and accuracy, and were communicated poorly. Young knew that this would prevent scientific progress and proposed that the reports be edited.

"She's most known for her technical editing," said Milera. "It's a position that requires knowledge of multiple STEM fields, as well as English skills. She helped start divisions at NASA for technical editing."

As part of her work in technical editing, Young published the "Style Guide for Engineering Authors", which was used by all of NASA, several federal agencies and universities across the globe.

"It was instrumental for World War II efforts," explained Milera. "Especially with the technology they were developing with airplanes at the time, knowledge had to be communicated quickly to help in the war."

Scan the QR code or visit the link to read the full story on UND Today!

COLLEGIATE

Competition Teams

1. NASA STUDENT LAUNCH (ROCKETRY) - UND

The goal of our team is to compete in national and international rocketry competitions. We design, manufacture, and fly high-powered rockets with solid rocket fuel. We are in the process of developing a new lab space with state of the art equipment that will greatly improve the team's efficiency and ability to experiment with new rockets. Most notably, we are beginning to experiment with liquid motors for next year.

"The Advanced Rocketry Club extends its deepest gratitude to the ND Space Grant for their unwavering support. Your assistance has made it possible for us to participate in the NASA Student Launch Competition, an opportunity that would not have been achievable without your generous backing. Thank you for believing in us and making our ambitions a reality."

2. NASA ROVER CHALLENGE - NDSU

The NASA Human Exploration Rover Challenge (HERC) is an annual competition that engages high school and college students worldwide in designing, building, and testing human-powered rovers to navigate simulated extraterrestrial terrain. The challenge fosters innovation by encouraging teams to incorporate advanced technologies and materials into their rover designs, addressing the practical challenges of space exploration. Participants gain hands-on experience in STEM fields, developing skills in engineering, problem-solving, and teamwork, while also presenting their designs and documenting their processes.

"Thanks to NDSGC we were able to finish the rover for before heading down to Huntsville, Alabama to complete in their 30th annual NASA HERC challenge. The challenge fosters innovation by encouraging teams to incorporate their ideas into their rover designs, addressing the practical challenges of obstacles and tasks to be performed on the course. The team were able to complete the course under the 8 minute mark with completing two obstacles and two tasks. All team members were graduating seniors pursuing their Mechanical Engineering degrees."

3. LUNABOTICS MINING COMPETITION - NDSU

We compete in the NASA Lunabotics challenge every year building new robots that help us complete the challenge set out by NASA. This challenge is set on a simulated moon environment and is meant to be an addition to NASA's current space missions this time is the space mission Artemis.

"The North Dakota State University robotics team Bison Robotics are extremely grateful for allowing us to use this money to fund this years competition. This allowed us to do many new things and travel to compete at this years Lunabotics competition."

4. DESIGN BUILD FLY (AIAA) - NDSU

Our team designed, built, and flew a remote controlled aircraft in a competition against a hundred national and international teams.

"The AIAA Design Build Fly competition pushed our team to utilize our problem solving skills we developed through our engineering coursework. Design, analysis, and manufacturing challenged us to work with extremely important details, while each member of our small team simultaneously worked on the big picture of project management and group organization. The NDSGC allowed our team to have these experiences, and provided sufficient funding to bring three underclassmen on the trip, securing the posterity of the NDSU team."

5. INTERCOLLEGIATE ROCKET ENGINEERING COMPETITION - UND

Our team builds high-powered rockets that push the limits of what is possible in the field of amateur rocketry.

"The Advanced Rocketry Club is beyond thankful for the continued support of the North Dakota Space Grant Consortium. This support allows our team to focus much of our work on giving students the most of their time competing in our club's different competitions."

6. FSAE RACECAR CHALLENGE - UND

Our team is an engineering design team comprised of about 30 members. Every year we design, build, and race an electric car at the Formula SAE competition in Brooklyn, Michigan. We compete against 90 other teams from across the world to find out which school has created the most reliable, efficient, and ergonomic car. There are many more factors that go into designing and building a race car but that is what makes our competition such a fun, exciting challenge. It is a challenge that our team and so many other students are passionate about.

"Our team is truly grateful for the opportunities that this grant has allowed for us. I like to think this money was spent well going towards the furthering of our education in a non-academic setting. I do believe that we have benefited as students and as future contributing members to society."

7. LUNABOTICS - UND

The UND Robotics team participated in the NASA Lunabotics Competition, where the objective was to transverse the lunar surface to collect and deposit regolith into berms. This project directly supports the NASA Artemis mission.

"The UND Robotics team is immensely grateful for the support from the North Dakota Space Grant Consortium. With this support, the team was able to acquire high-quality materials and resources that assisted in bringing our design to life and will also lead future UND Robotics teams to success."

The North Dakota Space Grant Consortium proudly provides funding to students participating in regional and national NASA and STEM competitions. It is imperative that students be given the chance to partake in these events as they challenge a student's collaboration and problem-solving skills while promoting innovation.

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The FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition promotes inclusivity and hopes to inspire students to engage in STEM activities to become future STEM leaders. All students, whether they possess technical or non-technical skills, are encouraged to be part of these competition teams. The FIRST Robotics Competitions combine STEM and sports. Past regional qualification rounds have put robots to the test of playing basketball! The North Dakota Space Grant Consortium is thrilled to fund FIRST Robotics Teams across the state of North Dakota. In the past, North Dakota teams have advanced to the FIRST Robotics World Championships.

K-12

Competition Teams

1. JAMESTOWN: TEAM #7578

Our team competes in the FIRST Robotics Competition each year. We are a team that serves several local communities and school districts. We also provide access to the team free of charge to make STEAM as accessible as possible for local high schoolers!

"Our team is extremely grateful to NDSGC and their help in funding our FIRST Robotics team for the 23-24 season! Our students have stepped up and learned many new skills and had access to new and exciting technology because of the Space Grant Program this year!"

2. DEVIL'S LAKE: TEAM #8586

Our team meets monthly during the off season and multiple days a week during the building season of robotics. We are a member of FIRST robotics. We promote teamwork and enhance creativity, and encourage critical thinking skills. We compete at the Great Northern Regional Competition in Grand Forks and plan to compete at the STEM Expo in Fargo in July.

"Completing this award helped our team members learn the process of shopping for materials needed for the team and submitting the correct information needed for the award."

3. ROLLA: TEAM # 8255

Our FRC team builds a competitive robot to compete in a game and score points. They design, build and program this robot to compete against other teams. During the build process they learn amazing skill such as teamwork, collaboration, programming, engineering, financial responsibility/budgeting, advertising/promoting, community service just to name a few. It allows them to experience and learn about the world of STEM and the opportunities that are out there for them.

"Rolla Robotics: Robodogs Team #8255 The Rolla robotics team had a successful season. The team is 12 members strong and are hoping to grow their team and bring more awareness to the benefits of FIRST and stem activities. The team participated in two regional competitions this year. Competing in the Grand Forks regional in March and the Granite City Regional in St. Cloud in April. The team worked hard all year and were happy to finish in the top half of the competition and have great plans moving forward next year. The kids are very excited and keep improving on their skills every year. The kids continue to learn more about STEM activities and career paths, community service, and programming. Our program foundation was established in the First Lego League and now we have FRC students who understand the program and are starting to use the foundational skills acquired in FLL to succeed in FRC. The future is bright for the Robodogs, and we are excited to see exactly how high they can climb. Thank you so much to the NDSGC for the opportunities they have allotted our members. This has allowed our students the opportunity to learn about careers and opportunities that would otherwise have gone unnoticed. Thank you."

4. GRAND FORKS: TEAM #8188

Our team was given a game with tasks to be completed and had a little over 6 weeks to design, prototype, build and program a robot to compete in competitions with other competitors from around the country and even the world.

"I am grateful that the ND Space Grant Program has given our team the chance to exist and compete, which gives students like me the opportunity to be part of this program. It has helped me learn so many mechanical skills."

5. NORTHWOOD: TEAM #876

Our team designed, built, and programmed a robot for high level competition at the world level. This robot had to work with and against other robots to pick up large, soft rings and shoot them through various openings to score. At the end of the game, the robot needed to climb a chain and hang in the air.

"As a team composed of 29 young boys and girls, Thunder Robotics had a successful year. Learning and utilizing many skills took many hours of hard work and cooperation. The students designed, built, tested and programmed a winning robot that they named 'Sound Check'. Winning the Great Northern Regional and taking 2nd place at the St. Cloud Regional qualified team 876 for a trip to the World Championships in Houston, Texas where they did well. Thunder Robotics is very thankful to NDSGC for their grant. It helped enable them to achieve personal and team goals that they didn't believe were possible."

6. CANDO: TEAM #877

PiRho'botics at North Star is a FIRST robotics competition team. We have a six-week deadline to design, fabricate, program and test a robot to perform specific tasks for an annual competition. We use an engineering design process to iterate and improve on our design.

"ND Space Grant Program has been instrumental in unlocking opportunities for my students to further their knowledge and skill in STEM. FIRST robotics would not be an option at our school without the support of NDSGC."

7. FARGO: TEAM #7048

We are a student-led robotics team. Each season, we design, build, program and drive to a fully functioning robot to play a unique game. Skills that we build include engineering principles, machine tool use, electronics, programming, project management, teamwork, communication and marketing.

"The ND Space Grant Program made it possible for our team to participate in the FIRST Robotics championships in Houston, TX. This marks a milestone for our program and is a reflection of the incredible growth our students have experienced as thinkers and doers."

LEARN MORE

Scan the QR code or visit:
https://www.firstinspires.org/

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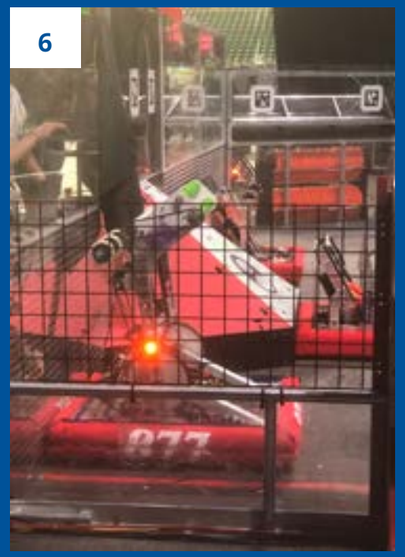

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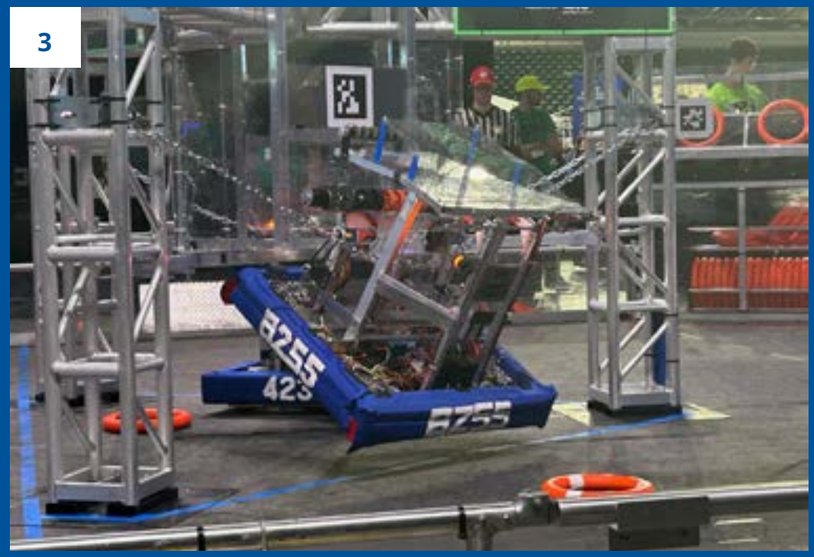

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RED RIVER RAGE
7048

COMMUNITY

Engagement Events

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1: NDVS/SB AEROSPACE VISIT

In April of 2024, the NDSGC hosted students and staff from North Dakota Vision Services/ School for the Blind at UND's Aerospace College. Students explored tactile books of the Moon, Mars, and solar eclipses before graciously receiving a tour of the Human Spaceflight Laboratory from Space Studies Graduate student Prankia Gupta.

2: TRIP AROUND ND - SCHOOL VISITS

During the 2023-2024 school year, our STEM Ambassadors (Parker, Thomas, Ryan, and Kate) traveled around North Dakota visiting over 70+ schools engaging with students and educators, sparking curiosity and excitement about STEM. Their mission was to share valuable opportunities through the North Dakota Space Grant Consortium and inspire the next generation of STEM leaders. These school visits were part of an ongoing effort by NDSGC to build a stronger, more inclusive STEM community across North Dakota. Through engagement, education, and collaboration, NDSGC hopes to empower students through our funding to pursue STEM careers and foster a diverse and skilled workforce for the future.

We thank all the schools, students, and educators who made these visits so successful, and we look forward to continuing to bring more opportunities and inspiration to North Dakota's classrooms.

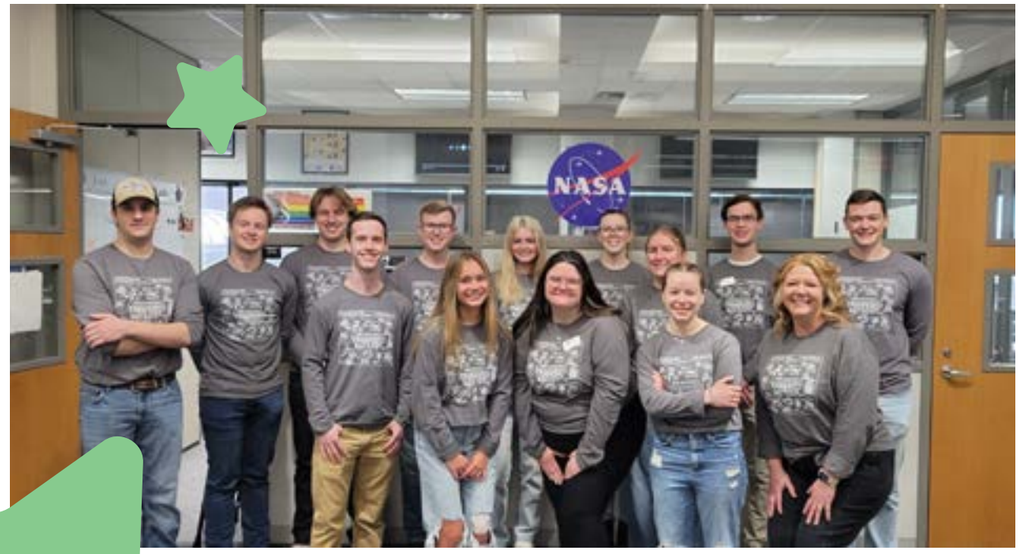
3. ND MATHEMATICS EDUCATORS CONFERENCE

Caitlin, Tori, and Laurie attended the ND Mathematics Educator Conference in Mayville, ND, sharing funding opportunities for educators in North Dakota, along with hosting a breakout for educators to bring back to the classroom. Educators attending the session, used critical thinking skills to build their Bristle Bots designed to clean a solar panel on a rover on the moon or Mars.

MENTOR CENTER - GRAND FORKS

Some of our STEM Ambassadors worked with middle school students at the after-school Mentor Center in Grand Forks, ND several times throughout the year using hands-on STEM activities to build curiosity and ignite a passion for learning. The goal was to help students in a way that would spark their creativity and encourage critical thinking.

The NDSGC supports STEM engagement events across North Dakota for K-12 students, educators, families, and the entire ND community. These events occur throughout the year, and are largely supported through the active STEM Ambassador program. These STEM Ambassadors travel across the state, participate in affiliate-led events, and lead their own classroom visits and public engagements. Thousands of North Dakotans are engaged each year in NASA and STEM through these events.



Community Day 2024

IN APRIL 2024, NDSGC'S STEM AMBASSADOR CREW BROUGHT HANDS-ON STEM FUN TO THE AEROSPACE COMMUNITY DAY, ENGAGING LOCAL COMMUNITY MEMBERS WITH EXCITING ACTIVITIES THAT ENCOURAGED CREATIVITY, PROBLEM-SOLVING, AND EXPLORATION.

The public event invites community members and families to explore all things UND Aerospace. The NDSGC led the Atmospherium shows throughout the day as well as a room full of hands-on activities for K-12 students. Attendees designed and built their own astronaut parachutes, launched stomp rockets, and practiced other hands-on STEM investigations. These activities not only sparked curiosity about aerospace and space science, but also provided a unique opportunity for all ages to dive into the world of STEM in an interactive way.

One of the most popular activities at Aerospace Community Days was the Stomp Rocket challenge. Visitors of all ages had the chance to design and launch their own rockets. After crafting their rockets, guests could hit the target by stomping on air-powered launchers. It was a thrilling experience that highlighted the fundamentals of physics and engineering, with plenty of laughter and excitement along the way! Another activity NDSGC provided for attendees of Community Days was creating constellations using beads and pipe cleaners. This creative activity helped participants learn about the night sky, the shapes of different constellations, and the importance of astronomy in space exploration. Each participant had the chance to design and build their own unique constellations while discovering how scientists and astronomers map the stars. The last activity engaged young innovators to design a parachute with limited materials at their disposal, participants were tasked with designing a parachute that could safely land an "astronaut" (a small toy) on the surface of the moon. This activity encouraged critical thinking, as kids experimented with different materials and designs to slow the descent and protect their astronauts in order to ensure a safe landing. It was a fun and educational way to learn about the importance of engineering, problem-solving, and the physics behind parachutes in space missions.

READ THE UND TODAY STORY!

https://blogs.und.edu/und-today/2024/04/the-sky-is-literally-the-limit/

UND's Atmospheric Sciences Ballooning team watches the eclipse.

Nationwide Eclipse Ballooning Project

In October 2023 and April 2024, a dozen UND students and faculty loaded into a packed van for long drives to the path the moon would cast its shadow on the Earth's surface.

Led by Drs. Montana Etten-Bohm and Jared Marquis, their task was clear, collect surface and upper-atmospheric meteorological observations before, during, and after the 2023 annular and 2024 total solar eclipses. The North Dakota team was one of 53 teams sponsored by the NASA funded Nationwide Eclipse Ballooning Project (NEBP) to better understand the impacts solar eclipses have on weather.

In October, from a base at Pueblo County Community College Southwest Campus in Mancos, Colorado, the team launched weather balloons hourly for thirty hours. The balloons ascended 100,000 ft over the course of two hours before popping and falling to the ground nearly 150 miles away - collecting observations of wind, pressure, temperature, humidity every second.

The following April, building upon the experience from Colorado, the North Dakota team partnered with the Minnesota team - consisting of faculty and students from St. Cloud State University, St. Catherine University, and Fond du Lac Tribal and Community College. From a "super-site" at Taylor University in Upland, Indiana, the Minnesota and North Dakota teams launched a total of 60 balloons every half hour before, during, and after the total solar eclipse. Despite cold, wet launches around thunderstorms the night prior, the clouds broke just in time for the team to experience totality.

Recently, the North Dakota team was selected to continue atmospheric observations. In January 2025, the team traveled to the Atlantic Seaboard to collect weather observations by launching balloons over the Gulf Stream. Since the eclipses, UND has worked diligently on analyzing the data with at least one publication in the works.

LEARN MORE

Learn more about NEBP online by scanning the QR code or visiting **https://eclipse.montana.edu/**

UND's Atmospheric Sciences Ballooning team sending up a balloon.

READ THE UND TODAY STORY "SUN, MOON AND BALLOONS"

https://blogs.und.edu/und-today/2023/11/sun-moon-and-balloons/

Plant the Moon/Mars

FALL 2023

In the fall of 2023, the North Dakota Space Grant Consortium sent out 48 Plant the Moon/Mars regolith activity packs, allowing over 400 North Dakota K-12 students to participate in the Institute of Competition Science's "Plant the Moon Challenge", This agricultural-based challenge asks students and their mentors to grow plants in lunar and Mars regolith- soil from Mars and the Moon that has been re-created in a lab.

Don't forget to subscribe to the NDSGC electronic mailing list to receive updates pertaining to the Plant the Moon Challenge, and more!

"It was exciting to see how my plants grew in lunar regolith. I felt like I was part of something truly big and exciting, NASA's mission to the moon."

– Participating student, Plant the Moon Fall 2023

APPLY FOR FUNDING

https://ndspacegrant.und.edu/educators/funding.html

FALL 2023 ORGANIZATIONS

Poppy Rose Homeschool | Team: Birdie

Mount Pleasant - Rolla | Team: multiple teams

Hettinger Public School | Teams: STEM Mania, STEM Hettinger

Dickinson High School | Team: Nerd Herd

Midkota Elementary School | Team: 4th/5th Grade Combo

Garrison High School | Team: Garrison High School

School of the Holy Family| Team: The Jetsons

Finley-Sharon Public School | Team: Artemis

Taube Museum of Art | Team: Magic City

North Dakota State University | Team: Bizonnauts

Participant Photos from Plant the Moon/Mars Fall 2023 and Spring 2024:

1. Poppy Rose Homeschool team Birdie, Fall 2023

2,3. Hettinger Public School team, Fall 2023

4. Grand Forks Public School Mentor Center team GEM Jaguars, Spring 2024

SPRING 2024

As classrooms start to gear up the for next Plant the Moon/Mars Spring 2025 Challenge, NDSGC will be supporting 5 schools across North Dakota with 21 Plant the Moon kits for students to design their research experiment examining how they can grow seedlings in moon/mars regolith.

"As an educator, I had not had a similar experience and this awakened in me the curiosity to continue exploring what other plants may be viable in lunar soil."

– Anonymous Team Coach, Plant the Moon Spring 2024

"PTMC has highly motivated my students towards space and agricultural science. It also has enhanced my students' critical thinking skills, scientific thinking skills and problem solving abilities."

– Anonymous Team Coach, Plant the Moon Spring 2024

"I loved it, it was very engaging, and it made me more social. I made new relationships and made me feel more smart and confident."

– Participating student, Plant the Moon Spring 2024

"Before the challenge, I had no interest in engaging myself in anything that had to do with space, or gardening. Doing the challenge piqued my interest in STEM-related subjects."

– Participating student, Plant the Moon Spring 2024

"It helped me realize that I would like to pursue a career in the research field when I've completed my undergraduate career. I loved learning about this process and I hope I can learn more in the future."

– Participating student, Plant the Moon Spring 2024

SPRING 2024 ORGANIZATIONS

Neon Pastels

Grenora Public School

Grand Forks Public Schools Mentor Center | Team: GEM Jaguars

NDSU Microbiological Sciences

North Dakota State University

Berthold Public School | Teams: Berthold Potatoes Berthold Lettuce

EDUCATOR PROFESSIONAL

Development

IDEAS 2024 workshop in Houston, TX. A group of teachers from several states gather for a group photo after testing their experiment with Dragonfly.

IDEAS 2024

In July 2024, the NDSGC continued their partnership with South Carolina and North Carolina Space Grant Consortia to host their national IDEAS (Innovative Differentiated Exploration Activities in Space Science) professional development workshop for educators. The 2024 workshop was hosted by Space Center Houston (SCH) and NASA Johnson Space Center (JSC) in Houston, TX with 27 educators from 6 states, (New Jersey, Nebraska, South Carolina, North Dakota, North Carolina, and Tennessee). The NDSGC also supported 5 STEM Ambassadors to help facilitate this workshop centered around Diversity, Inclusion, and Accessibility (DEIA) in NASA and STEM lessons and activities geared for K-12 and informal educational settings.

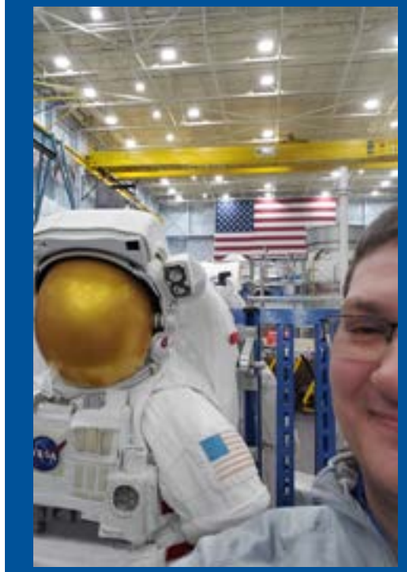
Educators integrated the Universal Design for Learning and adapted lesson plans to better meet the needs of their students, focused on increasing accessibility for all learners. The educators also toured NASA JSC facilities, held Moon rocks, and heard from Guest Speaker, Eileen Stansbery, Chief Scientist of Astromaterials, at a special event hosted by SCH. Thank you to all who participated!

Participating Educators:

- Lisa Ramey, North Star Public Schools
- Samantha Isan, West Fargo Public Schools
- Courtney Hernandez, Grafton - Upper Valley Special Education
- Joseph Herold, Hettinger Public School
- Savannah Christenson, North Dakota State University
- Tara Ulrich, Grand Forks School District
- Joseph Ostgarden, Grand Forks School District/ Red River High School
- Steven Quinlivan, Canter-Stanton Public Schools
- Beth Duchsherer, United 12 District - Burlington Elementary
- Katy Ramey, Northwood Elementary

Participating STEM Ambassadors:

- Thomas Iken
- Joshua Ernst
- Hailey Olson
- Kate Kesler
- Amanda Curatti



"Attending IDEAS 2024 was an unforgettable experience that significantly expanded my horizons. The event brought together leaders and innovators from across the United States, and I felt privileged to be part of such an inspiring and dynamic community.

One of the highlights of the event was the incredible opportunity to meet and interact with people whose work is genuinely invaluable. These conversations not only provided fresh perspectives but also ignited a deeper passion within me for collaboration and innovation. The energy and commitment of everyone I met reaffirmed the importance of collective effort in driving progress.

My time in Houston was nothing short of remarkable. Exploring NASA and Space Center Houston was a surreal experience—truly 'out of this world.' Standing in spaces dedicated to pioneering achievements in space exploration was both humbling and inspiring. The exhibits, stories of astronauts, and glimpses into cutting-edge technology left me in awe of what humanity can achieve through curiosity and determination.

Beyond the learning and exploration, the connections I formed at IDEAS 2024 were invaluable. I had the chance to collaborate with some of the brightest minds, sharing ideas, strategies, and aspirations. These interactions have not only expanded my professional network but also provided me with practical insights that I look forward to applying in my own endeavors.

IDEAS 2024 was more than an event—it was a catalyst for growth, inspiration, and innovation. I am deeply grateful for the opportunity and excited to carry forward the lessons and relationships built during this incredible journey."

– Steven Quinlivan, Center-Stanton Public Schools

Participating Educators:

- Matthew Dahmen, Fargo Public Schools
- Keith Crisman, University of North Dakota
- Hope Burdolski, ND Gateway to Science
- Alisha Kelim, ND Gateway to Science
- Angela Bartholomay, Bottineau State College
- Jessica Enstad, Jefferson Elementary - Valley City
- Mary McHugh, Sweet Briar School
- Connie Nelson, Rolette Public School District

Participating STEM Ambassadors:

- Grace Heron
- Parker Johnson
- Amanda Curatti
- Jenny Mulholland
- Kate Kesler
- Maddalene Guthrie
- Cheyenne Harrison
- Hailey Olson

SEEC 2024

Last year, NDSGC was able to send 8 educators from North Dakota and 8 STEM Ambassadors to attend the annual Space Exploration Educators Conference (SEEC) in Houston, TX. This annual event is designed to immerse participants into the work of space exploration through hands-on workshops, expert presentations, tours, and interactive breakout sessions. This conference provides an exceptional professional development opportunity to enhance the passion for space science in the classroom and community. We look forward to continuing our support for these kinds of enriching opportunities, as we know they have the power to shape the next generation of scientists, engineers, and innovators.

^ "SEEC was an absolutely amazing experience with excellent orators and the opportunity to take many lessons from aerospace experts back to my undergraduate courses. One of the highlights of the conference was the chance to participate in some scientific diving!"

– Keith Crisman, University of North Dakota

"The SEEC conference provided me an abundance of teaching materials, resources and ideas to use in my classroom. I have shared these materials both within my home district and with teachers in neighboring districts and other states. The experience of being at Houston Space Center, seeing artifacts firsthand and conversing with Astronauts and other space industry personnel makes me a stronger, more confident teacher."

– Matthew Dahmen, Fargo Public Schools

"I had the honor of meeting and talking to Barbara Morgan, the first teacher in space! She was a part of the Teachers in Space Project and served as backup to Christa McAuliffe for the Space Shuttle Challenger but officially flew in 2007. She stepped into one of the sessions I was attending and sat down next to me! She commented on how she liked my artwork we were working on, and we got to talking. I got to share about my background and experiences, and after, she called me inspirational - it was crazy to hear that coming from someone who has paved the way for so many women in education and space!"

– Hope Burdolski, ND Gateway to Science

< "The opportunity to attend the SEEC Conference was an AMAZING experience! Learning from educators and leaders in the field, listening to important and inspirational messages from some of the most influential people I have ever known, and connecting with and staying in touch with educators all over the world make this one of the best conferences I have ever attended!"

– Alisha Kelim, ND Gateway to Science

MISU VISIT- EDUCATOR WORKSHOP

Each spring and fall semester, the North Dakota Space Grant Consortium (NDSGC) has the privilege of visiting Minot State University pre-service educators during the fall and spring semester. We share a wealth of STEM (Science, Technology, Engineering, and Mathematics) activities with pre-service educators. This unique opportunity helps build the gap between theory and practice for future teachers, offering hands-on experiences and practical lessons they can implement in their classrooms.

During these visits, NDSGC not only provides valuable STEM resources and engaging lessons, but also informs educators about various funding opportunities that support STEM education initiatives. By empowering pre-service educators with these tools and knowledge, NDSGC is helping to cultivate the next generation of STEM leaders and innovators.

The NDSGC is grateful for Dr. Dane Schaffer's invitation into her classroom and encourages affiliates to reach out if they would like the NDSGC to visit their pre-service classrooms.

Students and affiliates are encouraged to submit Student Success Stories to the NDSGC team.

SPACE GRANT ALUMNI SUCCESS STORIES

Where Are They Now?

PARKER JOHNSON

NDSGC Involvement: 2022 Summer Fellowship, 2022 Summer Final Report Scholarship, 2023 Fall Fellowship, 2023 Fall Final Report Scholarship, 2023 Travel Grant, STEM Ambassador

Education: At the University of North Dakota I majored in Physics with emphasis on Astrophysics and Computational Physics, as well as minored in Computer Science and Mathematics. I am now at the University of Arizona pursuing a Ph.D. in Astrophysics

Where are you now? I am in Tucson at the University of Arizona pursuing a Ph.D. Astrophysics. My current research involves engineering and science cases involved with adaptive optics. Specifically, I am planning to enhance the performance of our instrument, MagAO-X, by implementing accelerometers to the telescope's structure and using real-time vibration corrections through sensor fusion and artificial intelligence driven algorithms. I am also working on a proposal for time to use MagAO-X to vet potential Habitable Worlds Observatory (HWO) targets to ensure there is not a faint companion in the system (another star). Hence, increasing the likelihood of HWO observing a habitable planetary system during its missions durations.

Advice to Students: My advice to all ND students is to be willing to sacrifice a small reward today, for a greater reward tomorrow. Stay focused, work hard, and trust that it is your current efforts that dictate your future success

SEAN MCCLOAT

NDSGC Involvement: STEM Ambassador 2022-2024, Industry Internship, 2023, 2024, Student Research Fellowship, 2017, 2022

Education: '24 PhD Aerospace Sciences, '17 MS Space Studies, '13 BA Philosophy, SUNY Geneseo

Where are you now? I am currently teaching several astronomy classes as Visiting Assistant Professor at Lehigh University, in Bethlehem, PA. It is rewarding being able to teach in a different part of the country because even though it might seem like a different crop of students, the experience reinforces to me that there is much more in common in what we love about space than there is different.

Advice to Students: In the words of the late great Joseph Campbell: "Follow your bliss". Find the thing that grabs you and dive in all the way! Stay positive – success is much closer than it can feel. Don't worry about what it seems like everyone else is doing – set your goals, find your bliss, and make small steps every day.

HOPE BURDOLSKI

NDSGC Involvement: STEM Ambassador 2021 - 2023, Pearl I. Young Scholarship Recipient 2022, Affiliate Mini Grant Spring 2024, SEEC Grant Recipient 2024, attended the Western Region Space Grant Consortium Meeting 2024

Education: Bachelor of Science in Education, minors in biology, middle level education, and music

Where are you now? I am currently the Outreach and Education Director for North Dakota's Gateway to Science in Bismarck, North Dakota! I am also a local titleholder for the Miss North Dakota Scholarship Organization, where I get to serve as an advocate for STEM across the state! I am hoping to pursue my master's in teaching and leadership this upcoming Fall.

Advice to students: Take advantage of every opportunity available to you - it may change your life! Through the ND Space Grant Consortium, I am now in my dream job, attended the SEEC conference in Houston, TX, saw the total solar eclipse in San Antonio, TX, and was able to make connections with some amazing new partners in my current position while at the Western Region Space Grant Consortium meeting! None of these experiences would have been possible if I hadn't taken the leap to try and apply!

LINDSEY KIECKER

NDSGC Involvement: STEM Ambassador 2022-2023, Summer Faculty Fellowship 2024

Education: (Past) B.S.Ed. Chemistry Education from Valley City State University. (Current) M.S. Chemistry, Chemical Education Specialization from South Dakota State University

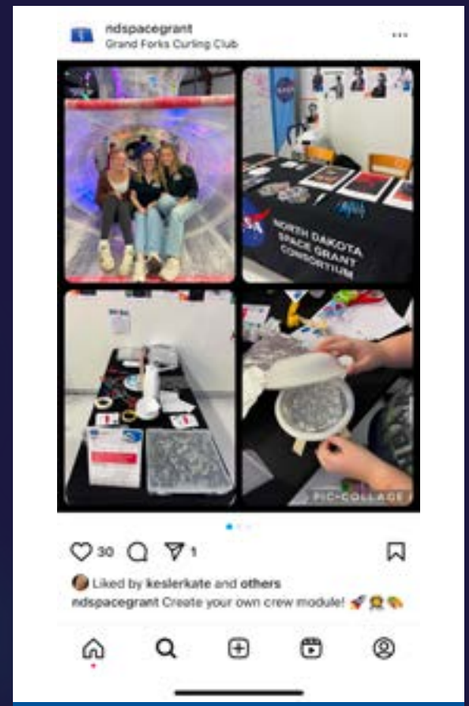
Where are you now? Currently I am working at Valley City State University, ND as a Special Appointment Lecturer. I am responsible for teaching various chemistry classes and assisting our pre-service science education students. On top of this I am still facilitating STEM outreach events in Jamestown, ND, which I started as a NDSGC STEM Ambassador!

Advice to students: Be open to all opportunities that come your way but also learn when to say "no". The balance between these talents will allow you to see your passions thrive.

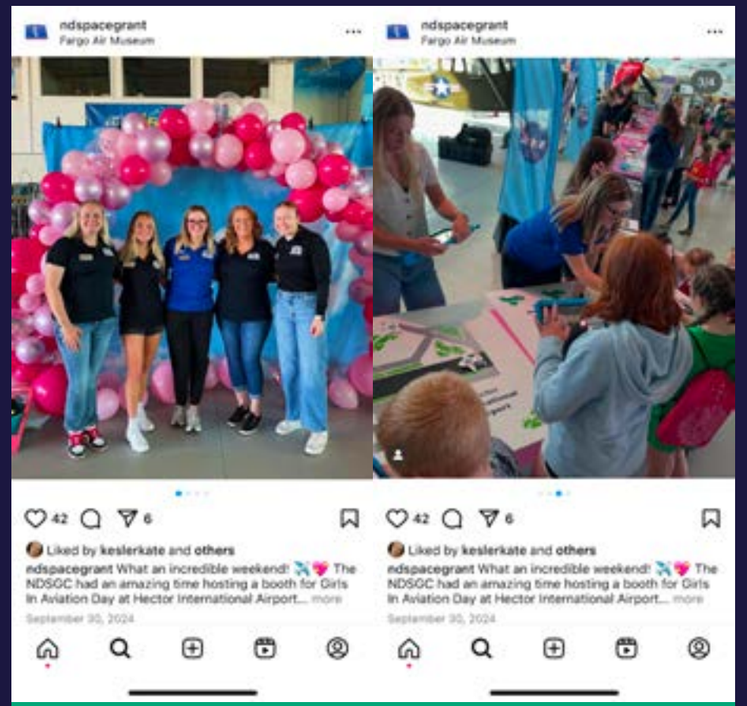
WE ARE

#NASAinND

#NASAinND allows North Dakota students, faculty, and community members to share STEM and NASA involvement on social media. Take a look at all the activities and hard work from the past year!



STEM Ambassadors helped with the Full STEAM Ahead event held by the GF Children's Museum at the Grand Forks Curling Club.



The NDSGC had an amazing time hosting a booth for Girls in Aviation Day at the Fargo Air Museum in 2024!

An advertisement to recruit ND educators to attend SEEC.

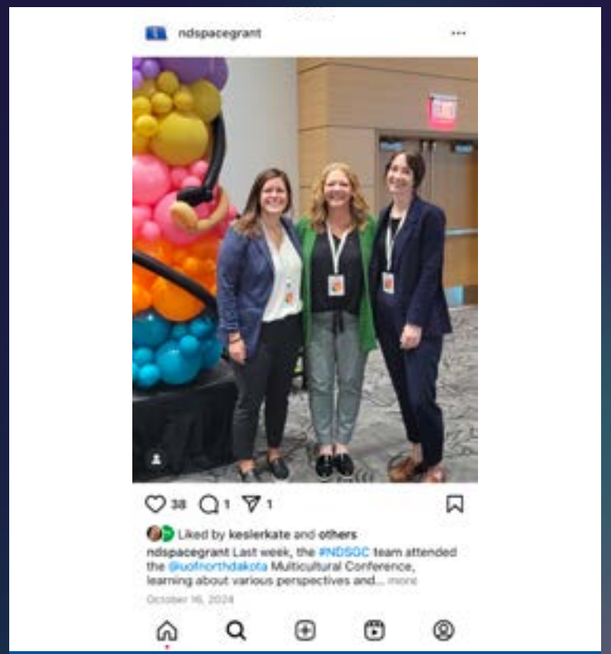
The NDSGC advocates for ND students to become NASA interns.

A NDSGC STEM Ambassador was part of UND's 2024 Holiday Video Greeting card!

The NDSGC supports K-12 and collegiate competition teams each year.

Check out this years spread on pgs. 40 - 43!

NDSGC promoting the applications for the upcoming Plant the Moon/Mars Challenge. Sharing information how the NDSGC can help support the classroom.



The NDSGC attended the Multicultural Conference at UND in October of 2024.

NDSGC Director Dr. Caitlin Milera's article about pioneer Pearl I. Young was published in The Conversation US.

Learn more about Dr. Milera's trip to the NASA Langley Research Center and Pearl I. Young on pg. 38!

STAY ENGAGED WITH

Space Grant

READ OUR BLOG

https://blogs.und.edu/jdosas/category/all-news/nasa-space-grant/

JOIN OUR MAILING LIST

tinyurl.com/mpncthaf

FIND THE BROCHURE ON OUR HOMEPAGE:

https://ndspacegrant.und.edu/index.html

WE WANT YOU!

The NDSGC is always looking to expand its reach with students and educators across North Dakota.

If you are interested in any of the opportunities described in this newsletter, want to engage your students or colleagues, or want to contact us, please reach out to any member of the NDSGC team. Contact information is listed on the inside of the front cover. You can register for our electronic mailing list and explore our brochure with the QR codes found on this page.

EDUCATOR WEBSITE

Educator activities can be found on our K-12 Engagement website.

Scan the QR code below to get involved with e-field trips to the Human Spaceflight Lab, to find STEM lesson plans, to request classroom guest speakers, and more!

VISIT OUR EDUCATOR WEBSITE

spacegranteducation.wixsite.com/ndsgc

WEBSITE AND SUBMITTABLE

To view all of the active NDSGC applications, please visit our Submittable application site. This list of programs changes throughout the year and reflects open application windows.

You can find information about NDSGC opportunities on their respective web pages, at https://ndspacegrant.und.edu.

VIEW ACTIVE NDSGC APPLICATIONS

ndspacegrant.submittable.com/submit

We Need You: NASA commissioned poster for an exhibit at the Kennedy Space Center Visitor's Complex in 2009.

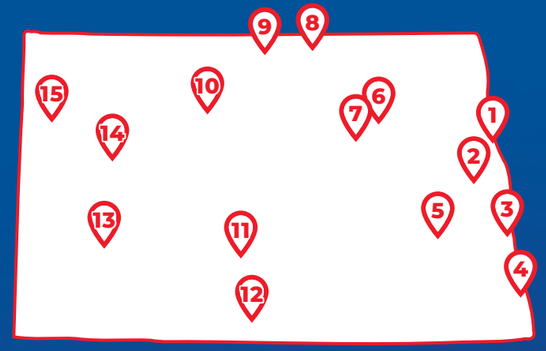
SOCIAL MEDIA

Stay up to date with North Dakota Space Grant events and happenings by following the North Dakota Space Grant on social media!
https://ndspacegrant.und.edu/about/social-media.html

- @NORTHDAKOTASPACEGRANT
- @NDSGC
- @NDSPACEGRANT
- NORTH DAKOTA SPACE GRANT
- NORTH DAKOTA SPACE GRANT CONSORTIUM
- NDSPACEGRANT

NORTH DAKOTA SPACE GRANT

AFFILIATES



THANK YOU!

None of these events would be possible without the amazing work of representatives at the NDSGC affiliate institutions (listed on the back cover). Their efforts allow the NDSGC to expand its reach statewide and ensure that students across North Dakota are able to participate in a number of programs. The NDSGC would like to thank each of them for their dedication to NDSGC programming, promotion of opportunities, and continued involvement.

Thank you, also, to Heather Schuler (Visual Communications Specialist in the School of Aerospace at the University of North Dakota) for designing the Aurora Newsletter. The NDSGC is grateful for all the work Heather has done and her contributions to the NDSGC.

1

Dakota Science Center

North Dakota Vision Services/ School for the Blind

University of North Dakota

2

Mayville State University

3

North Dakota State University

4

North Dakota State College of Science

5

Valley City State University

6

Lake Region State College

7

Cankdeska Cikana Community College

8

Turtle Mountain Community College

9

Dakota College at Bottineau

10

Minot State University

11

Bismarck State College

North Dakota's Gateway to Science

State Historical Society of North Dakota

United Tribes Technical College

12

Sitting Bull College

13

Dickinson State College

14

Nueta Hidatsa Sahnish College

15

Williston State College

NORTH DAKOTA SPACE GRANT CONSORTIUM

THANK YOU TO OUR AFFILIATES!

BISMARCK STATE COLLEGE

CANKDESKA CIKANA COMMUNITY COLLEGE

DAKOTA COLLEGE AT BOTTINEAU

DAKOTA SCIENCE CENTER

DICKINSON STATE UNIVERSITY

ND'S GATEWAY TO SCIENCE

LAKE REGION STATE COLLEGE

MAYVILLE STATE UNIVERSITY

MINOT STATE UNIVERSITY

NORTH DAKOTA STATE COLLEGE OF SCIENCE

NORTH DAKOTA STATE UNIVERSITY

NDVS/SB

NUETA HIDATSA SAHNISH COLLEGE

SITTING BULL COLLEGE

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

TURTLE MOUNTAIN COMMUNITY COLLEGE

UNITED TRIBES TECHNICAL COLLEGE

UNIVERSITY OF NORTH DAKOTA

VALLEY CITY STATE UNIVERSITY

WILLISTON STATE COLLEGE