

Instructors:

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Workshop Goals

1. Guide educators in engaging students in areas of space exploration and general science, by using effective instructional strategies and inclusive educational resources, using inspiring content.
2. Promote the effective use of *SciGirls*® investigations and NASA-developed resources through integration of space science content with the *SciGirls* style of inquiry.
3. Celebrate the 50th anniversary of the Apollo 11 landing by highlighting past milestones and current challenges within NASA's Moon-to-Mars pathways program. To do so, educators will conduct lunar-themed hands-on investigations in teams.

Workshop Objectives

1. Participants will develop a comprehensive understanding of the *SciGirls Seven* by the end of the workshop.
2. Participants will be equipped to modify existing lesson plans using the *SciGirls Seven* by the end of the workshop.
3. Participants will gain confidence teaching space sciences through an increased knowledge of space-related topics, with an emphasis on a mission to Mars.
4. Participants will be able to effectively conduct investigations presented during the workshop (and modified lesson plans) in their respective classrooms, utilizing their understanding of the *SciGirls Seven* and space sciences during the 2019-2020 academic year.



1. One Professional Development (PD) credit will be available through UND.

Registration

To sign up for the workshop, please fill out the following online application form, [here](#).

You will receive a **confirmation email** shortly after we receive your submission. If you do not hear from us after a few days, please contact Marissa Saad, msaad@space.edu.

1. To register for PD Credit:

- Grades for this workshop are given as Satisfactory or Unsatisfactory (S/U).
- Active participation in all workshop activities including discussions will result in a grade of 'S.'
- REGISTRATION OPEN: June 20, 2019
- REGISTRATION CLOSED: June 28, 2019

From UND Office of Extended Learning:

- You will receive an email confirmation of your course completion and instructions for ordering transcripts **after UND receives the grade report** from the instructor. **Contact Marissa Saad** concerning your grade if you have not received your course completion confirmation from UND within 2- 3 weeks of the end of course date.
- All grades for Professional Development Credits are recorded on official transcripts at the University of North Dakota as Graduate Professional Development Education Credit. **It takes approximately 4 weeks** from your end of course date for grades to be posted on transcripts, provided registrations and grades are received according to posted due dates.

Viewing Unofficial Transcripts and Ordering Transcripts:

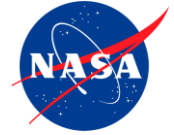
For full instructions, go to: <http://und.edu/tech-support/students/educators>

UND Office of Extended Learning

Professional Development for Educators

Phone: 1.800.CALL.UND

Website: www.educators.UND.edu



Optional Research Study:

Workshop participants will be asked to participate in a research study which involves three voluntary surveys. Participants will take the surveys before the workshop (pre-survey), immediately following the conclusion of the workshop (post-survey), and during the 2020 spring semester (secondary post-survey). Participation is completely voluntary and will not affect workshop grading. Those interested in participating will complete a consent of participation form, sent out to following registration sign-up. Participants should be aware that their participation will be anonymous, come with zero risks, and will benefit future iterations of NASA in the Classroom workshops. The purpose of this research study is to investigate the impact of a space-themed professional development workshop on teacher confidence in space sciences.

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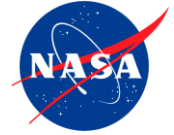
Thursday, June 20, 2019

Minutes of PD	Time	Activity	Instructors' Comments
0	5:15 – 5:30 pm	Meet at Rhombus Guys Brewery	Address: 116 S 3rd St, Grand Forks, ND 58201 (map on page 7)
30	5:30 – 6:00 pm	Workshop commences!	Begin individual introductions and ice breakers
60	6:00 – 7:00 pm	Working Dinner	<ul style="list-style-type: none"> • “Gots and Needs” activity • Informational session on “how do you fit in with Space Grant?”
30	7:00 – 7:30 pm	All guests prepare for the morning	<ul style="list-style-type: none"> • Discuss the workshop’s learning goals. • Conduct a pre-survey about preconceived space knowledge

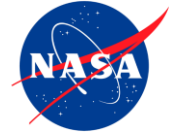
Attention educators: You must attend this working dinner to reach all 15 hours of PD credit.

Friday, June 21, 2019

Minutes of PD	Time	Activity	Instructors' Comments
0	8:00 – 8:45 am	Breakfast	Hot continental breakfast served outside Robin 148
15	8:45 – 9:00 am	Discuss the agenda and learning goals	
60	9:00 – 10:00 am	Investigation 1: Strange New Planet	Interactive group project to discover exoplanets using various forms of technology
0	10:00 – 10:15 am	<i>Break</i>	
30	10:15 – 10:45 am	Investigation 2: Pocket Solar System	Scalar representation of the solar system



45	10:45 – 11:30 am	Investigation 3: Rockets to the Rescue	Design, construct, and test a rocket that delivers a payload onto the Moon. Be sure to fly through the ellipse to secure a gravity assist that will get you to Mars!
45	11:30 – 12:15	Atmospherium	Learn about NASA’s upcoming journey to the red planet through educational videos in a 360-degree planetarium.
0	12:15 - 1:00pm	<i>Lunch</i>	
15	1:00 – 1:15	Introduction: Remote Sensing on Mars	Prepare the ultimate activity of the workshop.
45	1:15 - 2:00 pm	Investigation 4: Apollo 13	As you flew by the Moon, something went wrong with your spacecraft! You must work in teams during a critical and time-sensitive activity.
60	2:00 - 3:00pm	Investigation 5: Martian Landing Site Selection	After flying to Mars, we now have to select a preliminary landing site. Use topographical, magnetic, and other physical tools to select a site.
45	3:00 – 3:45 pm	Investigation 6: Water on Mars	After landing on Mars, your team sent out rovers to scout for sources of viable water, to save for future human settlements. Your rover brought back 6 samples. Which one is safe?
45	3:45 – 4:30 pm	Investigation 7: Bristle Bots	You selected a water-rich zone for your habitat. That Martian dust keeps covering your solar panels. Time to build a rover that can autonomously clear it off!
0	4:30 – 4:45 pm	<i>Break</i>	



45	4:45 - 5:30 pm	Investigation 8: NASA'S GLOBE Observer , Citizen Science	Now that your rover cleared off your solar panel, you can explore outside and take weather readings. <i>Smartphone/device necessary. Some extras will be available.</i>
60	5:30 – 6:30 pm	Working dinner	Educators will hear about information on future virtual reality, the Near-Space Balloon Competition, the Space Exploration Educators Conference, teacher space camp, and others.

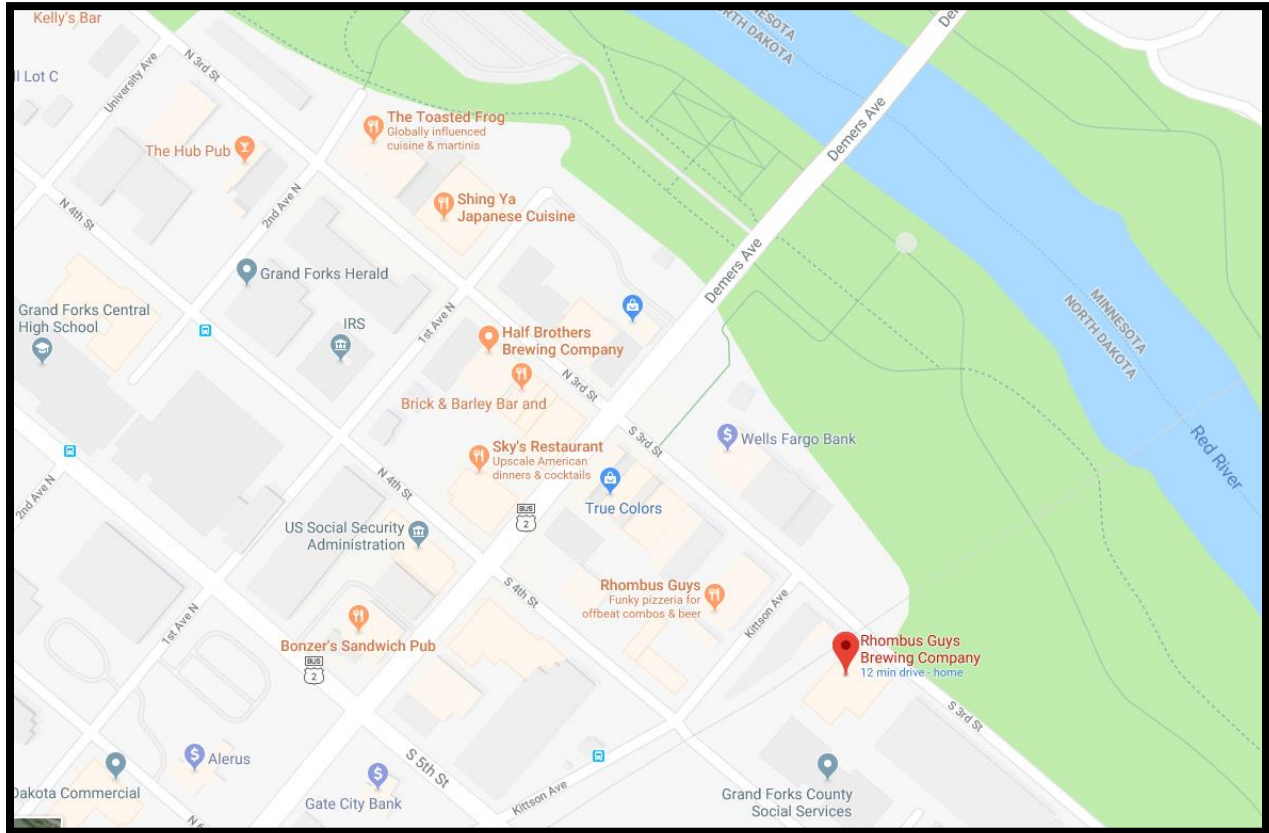
Saturday, June 22, 2019

Minutes of PD	Time	Activity	Instructors' Comments
0	8:15 - 8:45 am	<i>Breakfast</i>	<i>Continental Breakfast outside of Robin 148</i>
15	8:45 - 9:00 am	Review of Workshop Objectives and Agenda	Also includes discussion on how to apply for reimbursement
90	9:00 – 10:30 am	Human Spaceflight Laboratory Tour (Clifford Hall)	A tour of the space suit lab, spacecraft simulators, electric rover, and inflatable habitat. Instructors will drive state vehicles to the Hab.
0	10:30-10:45 am	<i>Break</i>	
45	10:45 – 11:30 am	Investigation 9: Selecting a Martian Settlement	Using real remote sensing data from Mars-based satellites, teams will categorize the next human settlement based on geology, geography, and chemical information.
60	11:30 – 12:30 pm	Working lunch: Sharing of settlement selections	Teams will present their final results: why they want to settle on Mars, their reasoning behind it, and process to reach their conclusions.

NASA in the Classroom: Moon-to-Mars Pathway
 Educator Professional Development Workshop
 UND Aerospace, Robin Hall, Room 148



60	12:30 – 1:30	Wrap-up and Reflections	Educators will complete a post-survey on any new space knowledge and learning outcomes; <i>Also: reimbursement paperwork</i>
Total			
15 hrs.	1:30 pm	Workshop Concludes	



Rhombus Guys Brewing Company
 116 S 3rd St, Grand Forks, ND 58201