



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 educational resources, with 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. Highlight milestones and challenges in a crewed Mission to Mars through hands-on investigations completed 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 2017-2018 academic year.



Grading:

- 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.'

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 Caitlin Nolby** 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

Credit Registration:

- Register online at: <http://educators.und.edu/workshop/?id=TL.NASAC.MME>
- OPEN: May 23, 2017
- CLOSED: June 16, 2017 (Final day to register for credit)
- Credit registrations are not complete until payment is received.

Research Study:

Workshop participants will be asked to participate in a research study which involves voluntary surveys. Participants will take the surveys before the workshop (pre-survey), immediately following the conclusion of the workshop (post-survey), and after the 2017 fall semester (secondary post-survey). Participation is completely voluntary and will not affect workshop grading. Those interested in participating will complete and sign a consent of participation form. Teachers will be aware that their participation will be anonymous, come with zero risks, and will benefit themselves pedagogically. The purpose of this research study is to investigate the impact of a space-themed professional development workshop on teacher confidence in space sciences.



Thursday June 8, 2017 – [Day 1 PowerPoint](#)

[Robin Hall Room 136, UND Campus](#)

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|-----------------|---|
| 11:00 - 11:15am | Workshop Objectives and Agenda Overview |
| 11:15 - 11:45am | Introduction and Networking Activity |
| 11:45 - 12:00pm | Educator Pre-test |
| 12:00 - 1:00pm | Investigation: Strange New Planet
(PVC Pipe 1.5" x 2' Telescopes) |
| 1:00 - 1:15pm | <i>Break</i> |
| 1:15 - 2:00pm | Working Lunch: SciGirls Seven Strategies |
| 2:00 - 2:30pm | Crew Selection and Mission Design
Downloadable NASA Table Tents |
| 2:30 - 3:30pm | Investigation: Stomp Rockets
Rocket Templates
Payload Materials List
Launch Pad Materials List
Additional Pink Rubber Blast Pad |
| 3:30 - 3:45pm | <i>Break</i> |
| 3:45 - 4:45pm | StarLab: Planetarium Show with Cynthia Jelleberg |
| 4:45 - 5:00pm | <i>Break</i> |
| 5:00 - 5:30pm | Investigation: Apollo 13 |
| 5:30 - 6:30pm | Investigation: Washing Water |
| 6:30 - 7:15pm | Working Dinner: Space Grant Resources
Info on the Near-Space Balloon Competition (NSBC) |
| 7:15 - 8:15pm | Investigation: On Target! |
| 8:15 - 8:30pm | Wrap up: Reflection on Investigations and Teaching Strategies |



Friday June 9, 2017 – Day 2 PowerPoint

Robin Hall Room 148, UND Campus

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| 8:15 - 8:45am | <i>Light Continental Breakfast</i> |
| 8:45 - 9:00am | Review of Workshop Objectives and Agenda |
| 9:00 - 9:45am | Investigation: Super Sleuths
SciGirls Episode
SciGirls Lesson Plan |
| 9:45 - 10:15am | Asteroids, Comets, Meteorites, and Dinosaurs
<i>Space Studies Professor: Mike Gaffey</i> |
| 10:15 - 10:30am | <i>Break</i> |
| 10:30 - 11:15am | Lesson Plan Modification: SciGirls Seven Strategies |
| 11:15 - 12:00pm | Working Lunch: Sharing of Modified Lesson Plans (Google Docs link for uploading and sharing lesson plans) |
| 12:00 - 12:45pm | Interactive Tour: * Human Space Flight Laboratory (tour info!)
<i>Space Studies Graduate Student Researchers</i> |
| 12:45 - 1:45pm | Investigation: Martian Water
Adapted from “Is There Water on Zork?”
Lesson Plan #1
Lesson Plan #2
Handout |
| 1:45 - 2:00pm | <i>Break</i> |
| 2:00 - 3:00pm | Investigation: Bristle Bot Rovers
Bristlebots Other Applications Workbook
Bristlebots Materials and Lesson Plan – Rover Tasks |
| 3:00 - 3:15pm | Educator Post-test |
| 3:15 - 3:30pm | Wrap up: Reflection on Investigations and Teaching Strategies
<i>*We also conduct Skype sessions with students in our Space Suit Lab. We’ll walk around the lab on our laptop, teaching them about the suits and answer their questions.</i> |