



**Massachusetts  
Institute of  
Technology**

Class Title: S14895

## **Optimization of Human Performance for Lunar Work Environments**

Semester and Year: HSSP Spring 2022  
Day/Times: Saturdays, 1:00-2:00 pm EST  
Format: Online Web Conference (Zoom)

Faculty  
Dr. Ekaterina Kostioukhina, MD  
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### **Course Description and Learning Objectives**

Considering taking a job on the Moon?

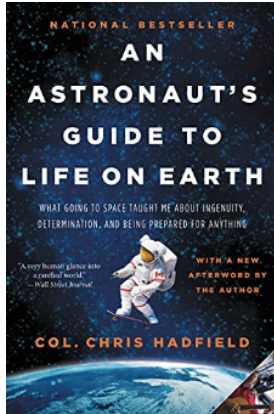
This 6 week class presents an exploration of the skills and performance needed for workers on the Lunar surface. The focus is on human optimization and training that you can start now.

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|---------------------------|--|
| <b>Saturday, Feb 26</b>   | Introductions and class overview.<br>Teamwork and Collaboration Activity.        |
| <b>Saturday, March 5</b>  | What's Happening on the moon?<br>Lunar projects.                                 |
| <b>Saturday, March 12</b> | No HSSP class. Spark Program.  |
| <b>Saturday, March 19</b> | Optimization of the biological machinery:<br>preparing your body while on Earth. |
| <b>Saturday, March 26</b> | Optimization of the brain software: resiliency<br>and grit.                      |
| <b>Saturday, April 2</b>  | Conclusions and inspiring stories.   |

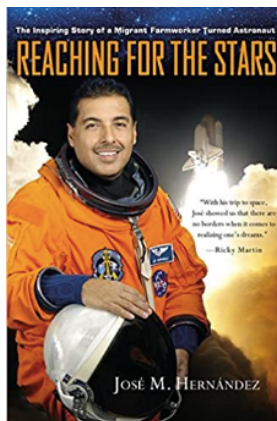
## Reading materials

Hadfield, Chris. (2013). An astronaut's guide to life on earth. Random House Canada.



Col. Hadfield takes readers deep into his years of training and space exploration to show how to make the impossible possible. Through eye-opening, entertaining stories filled with the adrenaline of launch, the mesmerizing wonder of spacewalks, and the measured, calm responses mandated by crises, he explains how conventional wisdom can get in the way of achievement — and happiness. His own extraordinary education in space has taught him some counterintuitive lessons: don't visualize success, do care what others think, and always sweat the small stuff. The secret to Col. Hadfield's success-and survival-is an unconventional philosophy he learned at NASA: prepare for the worst- and enjoy every moment of it.

Hernandez, & Rubin, M. R. (2012). Reaching for the Stars the Inspiring Story of a Migrant Farmworker Turned Astronaut. Hachette Nashville.



Born into a family of migrant workers, toiling in the fields by the age of six, Jose M. Hernández dreamed of traveling through the night skies on a rocket ship. Reaching for the Stars is the inspiring story of how he realized that dream, becoming the first Mexican-American astronaut. Hernández didn't speak English till he was 12, and his peers often joined gangs, or skipped school. And yet, by his twenties he was part of an elite team helping develop technology for the early detection of breast cancer. He was turned down by NASA eleven times on his long journey to donning that famous orange space suit. Hernández message of hard work, education, perseverance, of "reaching for the stars," makes this a classic American autobiography.

Melvin, Leland. (2017). Chasing space: Young Reader's Edition (First edition.). Amistad, an imprint of Harper Collins Publishers.



Meet Leland Melvin—football star, NASA astronaut, and professional dream chaser.

In this inspiring memoir, adapted from the simultaneous version for adults, young readers will get to learn about Leland Melvin’s remarkable life story, from being drafted by the Detroit Lions to bravely orbiting our planet in the International Space Station to writing songs with will.i.am, working with Serena Williams, and starring in top-rated television shows like The Dog Whisperer, Top Chef, and Child Genius.

When the former Detroit Lion’s football career was cut short by an injury, Leland didn’t waste time mourning his broken dream. Instead, he found a new one—something that was completely out of this world.

He joined NASA, braved an injury that nearly left him permanently deaf, and still managed to muster the courage and resolve to travel to space on the shuttle Atlantis to help build the International Space Station. Leland’s problem-solving methods and can-do attitude turned his impossible-seeming dream into reality.

Leland’s story introduces readers to the fascinating creative and scientific challenges he had to deal with in space and will encourage the next generation of can-do scientists to dare to follow their dreams.

Gerardi, Kellie. (2020). Not Necessarily Rocket Science. Mango Media.



Follow aerospace science professional Kellie Gerardi’s non-traditional path in the space industry as she guides and encourages anyone who has ever dreamed about stars, the solar system, and the galaxies in space.

Ever wondered what it’s like to work in outer space? In this candid science memoir and career guide, Kellie Gerardi offers an inside look into the industry beginning to eclipse Silicon Valley.

What it’s like to be a woman in space. With a space background and a mission to democratize access to space, this female astronaut candidate offers a front row seat to the final frontier. From her adventures training for Mars to testing spacesuits in microgravity, this unique handbook provides inspiration and guidance for aspiring female astronauts everywhere.

## One Strange Rock Documentary



The extraordinary story of Earth and why it is special and uniquely brimming with life among a largely unknown but harsh cosmic arena; astronauts tell the story of Earth through a unique perspective.



**Will Smith**  
as Self - Host  
11 episodes • 2018 ▾



**Chris Hadfield**  
as Self  
10 episodes • 2018 ▾



**Jerry Linenger**  
as Self  
9 episodes • 2018 ▾



**Mae C. Jemison**  
as Self  
8 episodes • 2018 ▾



**Nicole Stott**  
as Self  
8 episodes • 2018 ▾



**Leland Melvin**  
as Self  
8 episodes • 2018 ▾



**Michael Massimino**  
as Self ...  
5 episodes • 2018 ▾



**Jeff Hoffman**  
as Self  
5 episodes • 2018 ▾



**Peggy Whitson**  
as Self  
2 episodes • 2018 ▾



**Jonathan Paredes**  
as Self - Champion Cliff Diver ...  
2 episodes • 2018 ▾