



"People" People Working or Not Working in Isolation: Coping Tools for the Hospitality Industry

Topic 3 of 4:

Lessons from Astronauts on Dealing with Isolation

Presented by:

Dr. Lauren Blackwell Landon

Team Risk Discipline Scientist, Human Factors, and Behavioral Performance (HFBP) Element
NASA Human Research Program





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Research Recovery & Reskill

WEBINAR
SERIES



Rosen College of
Hospitality Management
UNIVERSITY OF CENTRAL FLORIDA



Lessons from Astronauts on Dealing with Isolation

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Targeted Research Training (TRT) Program

Housed in Department of Psychology at UCF



Cutting-edge research and interventions to improve workplace well-being and organizational effectiveness in hospitality



Interdisciplinary training for graduate students



Outreach and dissemination of research findings

Sunshine Education & Research Center

Funded by

The National Institute for Occupational Safety and Health (NIOSH)

Mission

The Sunshine Education and Research Center transforms workplace quality of life through transdisciplinary education, research and practice, and industry partnerships.



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Targeted Research Training

Faculty

- Dr. Mindy Shoss, I/O Psychology
- Dr. Cynthia Mejia, Rosen College
- Dr. Kristin Horan, I/O Psychology
- Dr. Steve Jex, I/O Psychology
- Dr. Deborah Breiter Terry, Rosen College

Academic Partners

- Multiple Universities
- Multiple Disciplines
- Faculty, Graduate and Undergraduate Students

Advisory Partners

- Central Florida Hotels
- Union
- Research & Public Policy





Dr. Lauren Blackwell Landon
Research Scientist, NASA





JOURNEY TO MARS



Lauren Blackwell Landon, Ph.D.

Behavioral Health & Performance (BHP) Laboratory

Human Factors and Behavioral Performance Element



NASA Johnson Space Center, Houston, TX



Space Flight Environmental Stressors

- μ gravity
- Space radiation
- Launch/entry acceleration/vibration
- Geochemical properties of destination (g, volatiles, dust)
- Comm lag
- Noise
- Altered light/dark cycles
- High CO₂
- Sensory deprivation
- Confinement
- Isolation
- Lack of privacy
- Tasks/workload



Spaceflight Operations

Low Earth Orbit

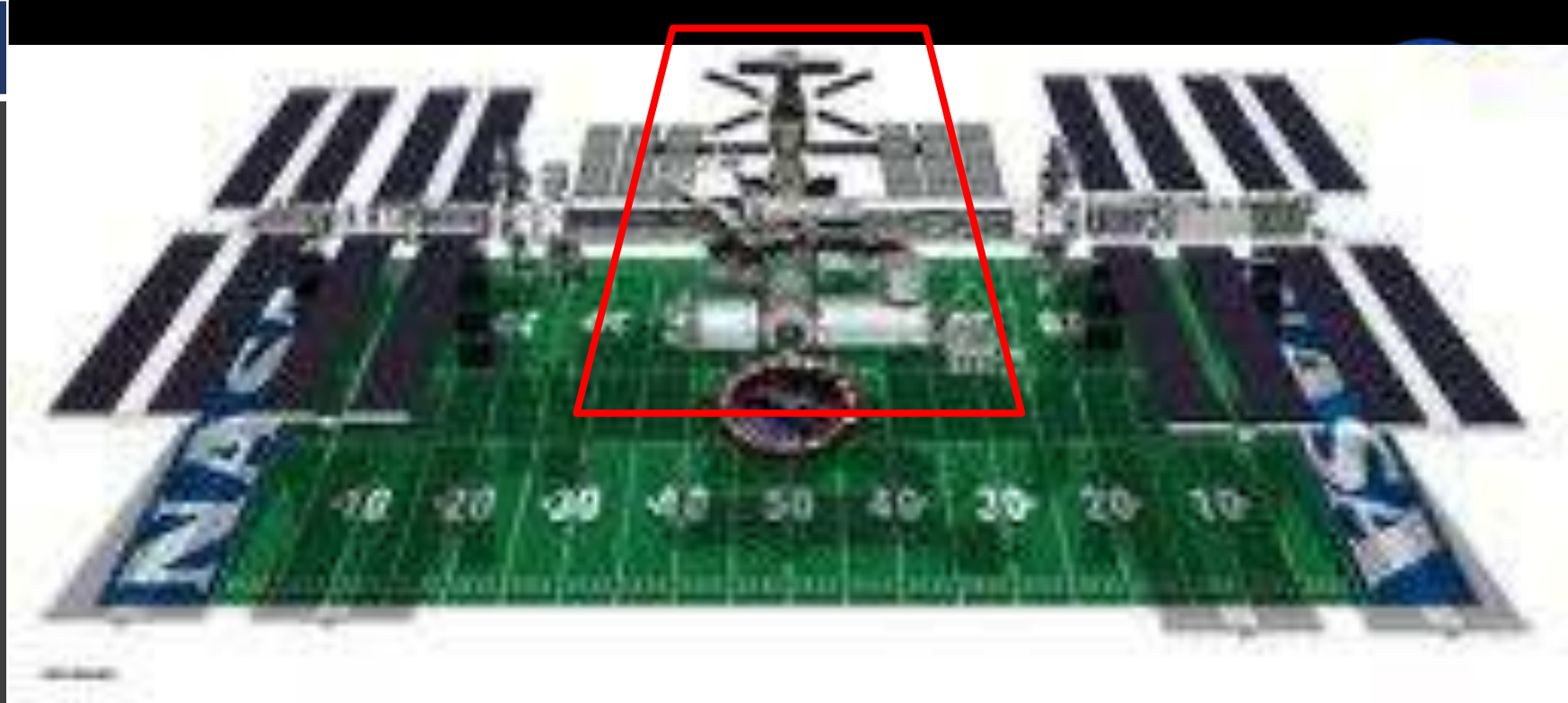
- Real-time communication with ground operations, family
- Provision of crew care packages
- Discretionary events
- Evacuation options
- Cupola and Photography
- Exercise 2 hours/day
- High tempo workload
- Private crew quarters

Future Missions

- Orion vehicle is much smaller
- Minimal privacy
- Reduced resupply

Major Challenges

- Selection & crew composition
- Team cohesion & coordination
- Fatigue, workload management
- Motivation, family connection
- Adaptation & resilience





Scott Kelly's 1-year Mission



- “Every day, I was exposed to ten times the radiation of a person on Earth, which will increase my risk of fatal cancer for the rest of my life. Not to mention the psychological stress, which is harder to quantify and perhaps just as damaging.”
 - *Scott Kelly, excerpt from “Endurance: My Year in Space and our Journey to Mars”*



Example analogs:

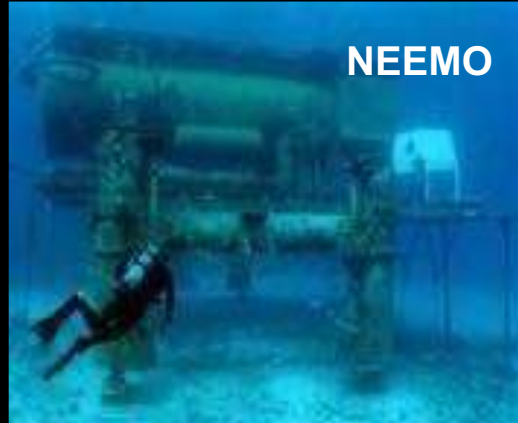
- Human Exploration Research Analog (HERA)
- Antarctic Stations (e.g., South Pole)
- Arctic Stations
- NEEMO, deep sea
- HI-SEAS
- Russian Mars 500
- :envihab
- Healthcare
- Military
- ISS



HERA



Military Units



NEEMO



HI-SEAS



Antarctica



:envihab



Healthcare



MARS 500



Past Findings in ICE



Overall Positive Experiences

- Challenge of the work
- Appreciation of colleagues
- Ability to master new skills
- Self satisfaction



Isolated Confined Extreme Environments (ICE)

"Winter-over Syndrome"

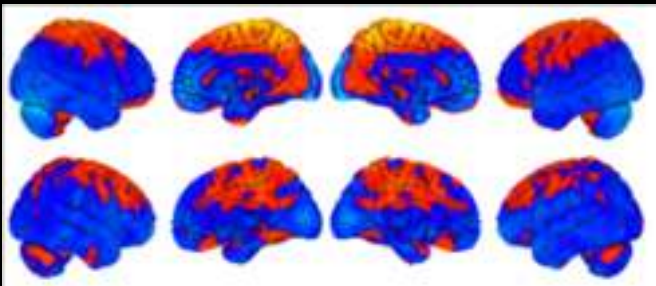
- Social narrowing
- Social withdrawal
- Somatic complaints
- Tension, irritability
- Emotional lability
- Territorial behavior
- Depression
- Lack of concentration
- Short-term memory
- Sleep problems, insomnia
- Aphasia
- Fugue state
- Susceptibility to illness

Negative Factors

- Difficulty of disengaging from failed relationships
- Increased focus to micro-stimuli
- Increased us versus them attitude
- Psychological and physiological sluggishness
- "Toasty"
- Insomnia

Adaptive Factors

- Station manager tone
- Prior experience
- Realistic expectations (e.g., crewmembers, recreation)



Bed rest brains

Space brains



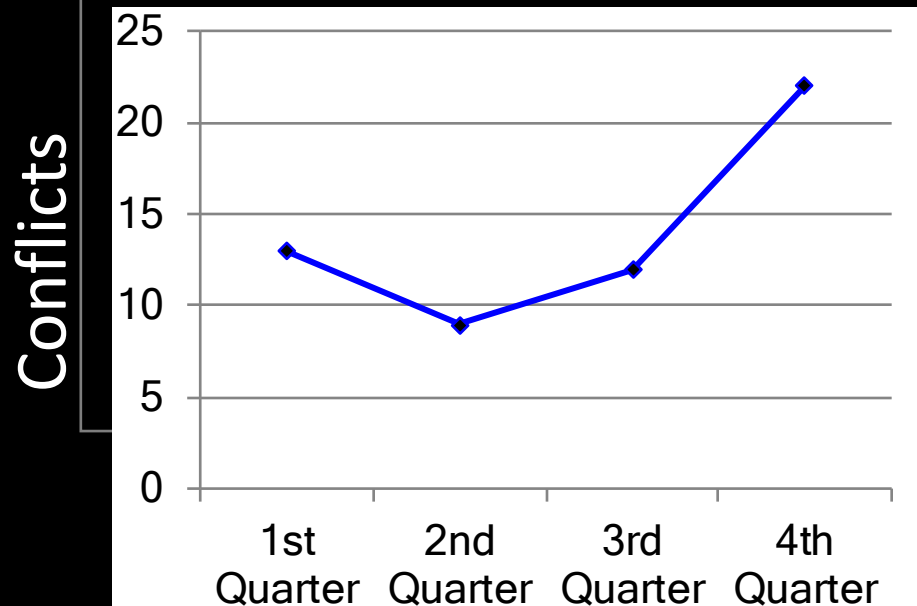
Summarized from
Otto, Nicolleti,
Salam, Leone and
Palinkas, Kanas
Reviews



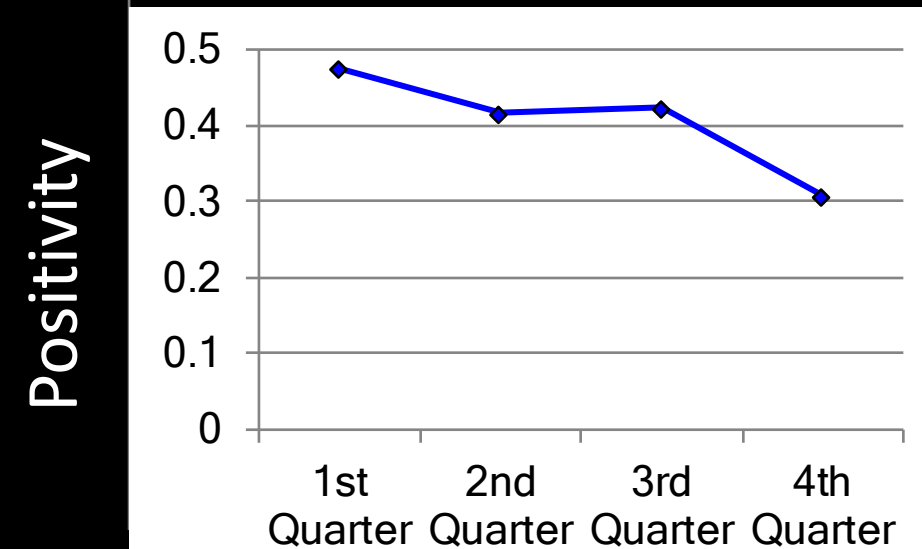
Teams Over Time

"You can live with anyone for two weeks..." – Shuttle-flown astronaut(s)

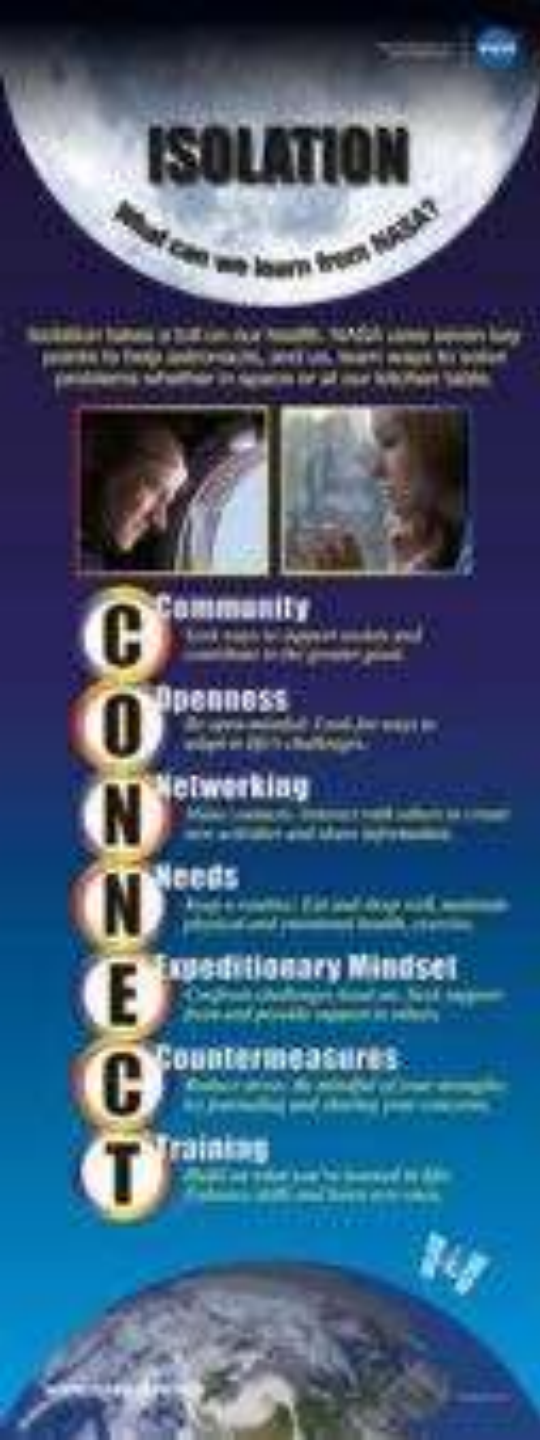
- ISS Astronaut journal entries on conflict by mission quarter



- ISS astronaut group interaction positivity ratings by mission quarter (n=244 entries)



NASA C-O-N-N-E-C-T



Created by: Dr. Tom Williams
Human Factors and Behavioral Performance Element Science
NASA Human Research Program

NASA C-O-N-N-E-C-T



Community



Buzz Aldrin, Apollo 11, 1969

ISOLATION
What can we learn from NASA?

Isolation is a challenge that can affect our health. NASA's space program has provided us with valuable insights into how we can best prepare for isolation, and we can learn from these experiences to help us live better lives on Earth.

Community
Find ways to connect with others and contribute to the greater good.

Openness
Be open-minded. Find new ways to adapt to life's challenges.

Networking
Make connections. Distance isn't always a barrier. Use technology and share information.

Needs
Know your needs. Eat well, sleep well, exercise, and maintain good health.

Expeditionary Mindset
Overcome challenges. Stay motivated. Stay positive. Stay resilient.

Countermeasures
Develop your skills. Stay healthy. Stay strong. Stay resilient.

Training
Stay motivated. Stay healthy. Stay strong. Stay resilient.





Connect with nature

- Psychological link to home / nature
- Sensory deprivation countermeasure
 - ✓ Sight
 - ✓ Smell
 - ✓ Taste
 - ✓ Touch
- Stress prevention / relief method

Picture taken by Shannon Lucid on Mir



Mike Foale, ISS

"I loved the greenhouse experiment. I enjoyed looking at [the plants] every morning for about 10 to 15 minutes. It was a moment of quiet time."

NASA C-O-N-N-E-C-T

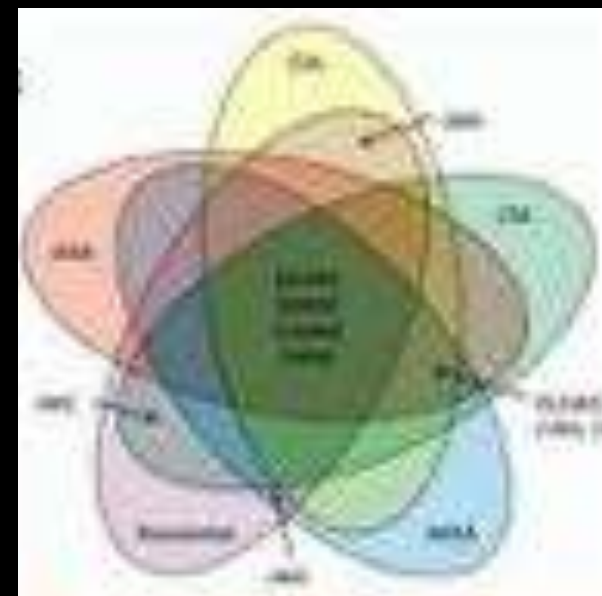
Openness

ISOLATION
What can we learn from NASA?

Isolation is a fact of life in our world. NASA's unique environment helps people to help astronauts, and vice versa, learn ways to solve problems whether in space or at our beloved home.

C O N N E C T

- Community**
Find ways to support each other and contribute to the greater good.
- Openness**
Be open-minded. Find the ways to solve our challenges.
- Networking**
Make connections. Discover what others are doing and share information.
- Needs**
Find a solution. Get what you need, maintain physical and emotional health, stay strong.
- Expeditionary Mindset**
Overcome challenges. Stay on task. Stay positive and provide support to others.
- Countermeasures**
Embrace your strengths and weaknesses. Stay positive and provide support to others.
- Training**
Stay on task. Stay on task. Stay on task.



NASA C-O-N-N-E-C-T



- Networking
- Behavioral Support Services
 - Provided to the crew: movies, music, family contacts, special events, photographs, magazines/newspaper, books, TV, holidays, etc.
 - Training on the psychological factors of long duration spaceflight
- Behavioral Medicine Services
 - Psychiatrist/flight surgeon, Operational Psychologist, neurocognitive testing
- Private Psychological Conferences & Private Family Conferences



NASA C-O-N-N-E-C-T



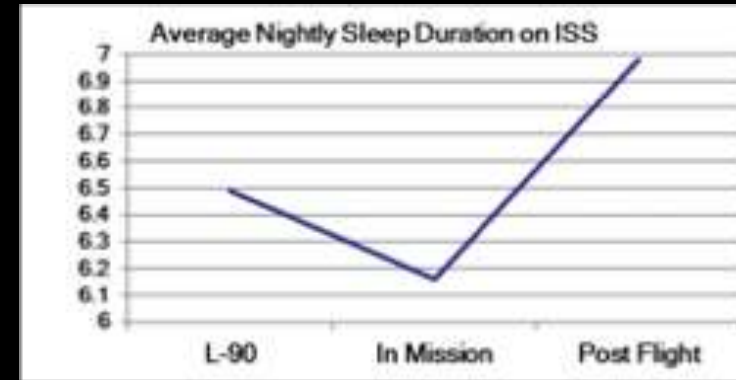
Needs





Sleep/Fatigue Findings

- Lab studies: **Neurocognitive deficits accumulate over time** in conjunction with subjective adaptation to sleepiness (Goel et al., 2009)



Analog studies (30 days)

- Acute sleep deprivation (awake for 36 hours)
 - Leadership: decreased in social support, providing resources, encouraging team self-management, providing feedback (becomes more hierarchical)
- Chronic fatigue (5.5hrs of sleep during week nights, 8hrs weekends)
 - Shared cognition: decreased overall, decreased communication
 - Supporting behaviors: decreased overall, but degree varied between individuals

NASA C-O-N-N-E-C-T



Expeditionary Mindset

➤ Expeditionary Skills

- Teamwork and Group Living
- Team Care
- Self-Care/Self-Management
- Leadership/Followership
- Communication

➤ Stress Management

➤ Conflict Management

➤ Cross-Cultural Training





Psychological Competencies for Future Deep Space Missions

As vehicles/habitats get smaller, missions get longer, and communications get delayed, specific competencies become much more important:

- *Small Group Living*
 - Tolerance of other's differences
 - Awareness and respect for others' personal needs and boundaries
 - Respect for common living areas
- *Autonomy and independence*
 - Competence in solving technical issues independently and with limited resources
 - Working autonomously without dependence on ground or crewmates



NASA C-O-N-N-E-C-T



Countermeasures



William Clark Writing in His Journal at Eagle Creek, 31 May 1805, by Gary R. Lucy.



Nearly all astronauts in the astronaut journals project mentioned writing in their personal journals as an activity that helped them adjust to living and working on the ISS (Stuster, 2016).

“Thanks journal. Venting complete. I feel much better now... It is funny. A bunch of hours later and I am completely over this issue. Not a care in the world about it. Glad I could vent to the journal and not via email, because that could be catastrophic to my career.” – ISS Astronaut

NASA C-O-N-N-E-C-T



Training

Learn more: <https://www.nasa.gov/hrp/social-isolation>

ISOLATION
What can we learn from NASA?

Isolation helps us test our limits. NASA's space program has helped us learn about ourselves and our world. Now, NASA is using its experience to help us learn about social isolation and how to overcome it.

C O N N E C T

- Community**
Find ways to connect with others and contribute to the greater good.
- Openness**
Be open-minded. Find new ways to solve old challenges.
- Networking**
Make connections. Distance will pull you apart, but activities and shared experiences will bring you closer.
- Needs**
Know your needs. Eat well, sleep well, exercise, and practice good self-care.
- Expeditionary Mindset**
Embrace challenges. Stay positive. Stay focused. Stay resilient.
- Countermeasures**
Develop strategies to deal with stress, anxiety, and other challenges.
- Training**
Find ways to stay motivated and learn new skills.



NATIONAL OUTDOOR LEADERSHIP SCHOOL
NOLS, the premier teacher of outdoor skills and leadership, offers courses 10 days to full semesters in the world's most spectacular wilderness classrooms.



Questions?

<https://www.nasa.gov/hrp/social-isolation>





Question & Answer



For More Information

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Targeted Research Training

Targetedresearch@ucf.edu
sciences.ucf.edu/psychology/sunshine/



Rosen College

hospitality.ucf.edu
hospitality.ucf.edu/research-recovery-and-reskill



**Research
Recovery
& Reskill**

**WEBINAR
SERIES**

**Rosen College of
Hospitality Management**
UNIVERSITY OF CENTRAL FLORIDA



Upcoming Webinars

Finding Purpose: A Life Check Up

Dr. Connie Wanberg, University of Minnesota

Thursday October 22, 2020

12 PM – 1 PM EST

[Zoom Registration Required](#)





Thank You!

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Additional Reskill resources:

Degree programs

<https://hospitality.ucf.edu/degree-programs/>

Graduate certificates:

[Hospitality and Tourism Technologies Graduate Certificate](#)

[Destination Marketing & Management Graduate Certificate](#)

[Event Management Graduate Certificate](#)

Upcoming Webinars:

***"People" People Working or Not Working in Isolation:
Coping Tools for the Hospitality Industry***

(balance of 4-part series)

Part 4: Finding Purpose: A Life Check Up

Thursday, Oct. 22 @12:00 p.m. ET

