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# NIGHTVISION STEM, RESEARCH & DEVELOPMENT

Whitney Shamley  
Systems Engineer

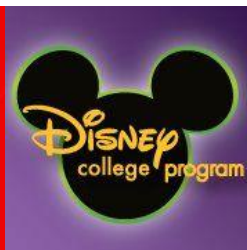
September 11, 2019

WHITNEY SHAMLEY | Senior Specialist, Systems Engineer (Chemist)

# Education



- Centennial High School (Arizona 2005)
- Intern, Walt Disney Company (Florida 2006)
- Intern, City of Phoenix Police Department, LSB (Arizona 2008)
- Northern Arizona University (BS of Chemistry 2009)
- Arizona State University (2014)
- Grand Canyon University (MS of Chemistry 2019)



# Job History... Not the Straightest of Paths



- Quality Assurance Cosmetic Chemist (Philosophy Cosmetics)



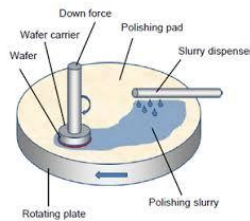
- Laboratory Associate, Chemist (Precision Science)



- Junior Shift Chemist (DoD, Chemical Weapons Convention Treaty)



- New Product Development Chemist (Air Products & Chemicals)



- Teacher, 6<sup>th</sup> & 7<sup>th</sup> grade math and science (Tempe Elementary School District #3)



- Chemist I (City of Phoenix Water Department)



- Insurance Agent (USAA Insurance)

- Sr Specialist, Systems Engineer (Chemist, Harris Corporation)



# STEM at Harris Corporation

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**Global resource for Night Vision, specializing in tactical application**

**Employ 800+ manufacturing line works, engineers, scientists, and office workers.**

**Within Research & Development and Manufacturing:**

- **Electrical Engineers**
- **Mechanical Engineers**
- **Chemical Engineers**
- **Programmers**
- **Computer Engineers**
- **CAD specialists**
- **Ceramics Engineers**
- **Materials Scientists**
- **Physicists**
- **Chemists**

# Science of Night Vision



Video Unavailable

# My Job At Harris



- **Chemical modeling for R&D**
- **Research possible hinderances between materials on a molecular level**
- **Troubleshoot manufacturing problems that involve molecular interaction**
- **Conduct small and large scale testing of equipment to ensure process viability**
- **Think outside the box for the new materials coming into development**

# What Helped Me Get Here?



## Encouraging educators

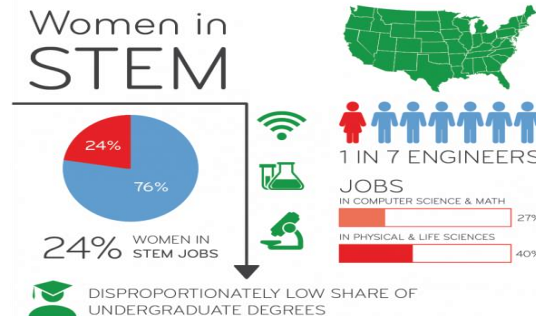
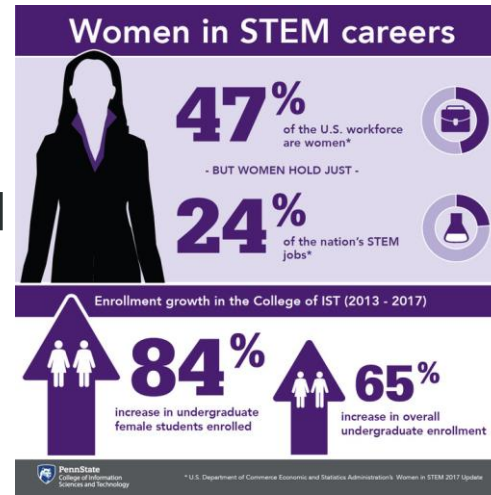
No-shame failure for honest attempt  
Authenticity, it's okay to change your mind

## Engaging lecture material

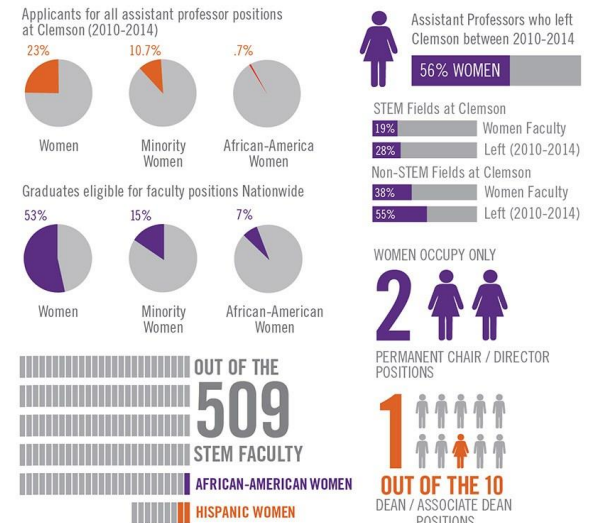
Hands on experiments  
Real world application  
Multi-modal learning

## Mindfulness and candor about social norms

Not many women in my field  
It's okay to be smart \*and\* sociable



## Women in STEM Data



# How can you help students succeed in STEM?



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**Encourage them to look up scientists in the area they like, so they can see what science really is day-to-day.**

**Encourage curiosity, ask them why things happen not just what happened.**

**Make them really strong researchers, most of my job and the people I work with, research something every day.**

**Encourage collaboration skills.**

**Make sure the “smartest” voice doesn’t silence those less inclined that may still have good ideas.**

**Math is important, but critical reasoning is paramount, making logical steps to visualize and solve a broader problem.**



# Thank you!