A suitable climate for a successful life in Academia

Dr. Aomawa Shields
NSF Astronomy and Astrophysics Postdoctoral Fellow
UC President’s Postdoctoral Program Fellow
2015 TED Fellow
UCLA/Harvard

NRAO Diversity Speaker Series
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Aomawa

(Ah-Ō-muhwah)
My Grandmother

Delphine Simmons
My Mom (and me)
The Facts

• Parents are musicians

• Grandmother liked math, studied for a while

• School was important
SPACE CAM
• Habitable planet
• hosting life?
Climate modeling of exoplanets
Challenges

- High blood pressure
- Anxiety, depression
- Imposter Syndrome
- Difficulty separating work from home
- Fun??
Approach
What does success mean to you?

• Career
• Family
• Physical health/fitness
• Wealth/status

Happiness!
Graduate School

- Mentorship
- Support/process groups
- Exercise
- Family/friends
- Hobbies
- Spiritual community
- Collecting evidence
Minorities Striving and Pursuing Higher Degrees of Success in Earth System Science (MS PHD’S)

MS PHD'S Overview

Introduction

MS PHD’S was established with a goal of providing professional development experiences to facilitate the advancement of minorities committed to achieving outstanding Earth system science careers. In order to accomplish this goal, the MS PHD's initiative sponsors programs that provide minorities with:

- increased exposure to Earth system science community, via participation in scientific conferences, mentoring relationships and virtual community activities
- professional skills (e.g., grantsmanship, research, communication, teaching, etc.)
- development opportunities
- information regarding future funding, education and career opportunities and resources
- networking opportunities with established Earth system science researchers and educators
- membership within a virtual community that facilitates networking with and
I’m an astronomer and astrobiologist, and study the behavior of ice on planets orbiting stars other than our Sun. I’m also an actor, and was in a movie that went to Sundance and was one of Ebert and Roeper’s “Top Ten Films of 2005”. I’m a science communicator, I play the violin, write poetry and paint, love massages and movies, and hanging out with my husband and our two cats.
Resources

1. The Dissertation Journey
   A Practical and Comprehensive Guide to Planning, Writing, and Defending Your Dissertation
   By Carol M. Roberts

2. Writing Your Dissertation in Fifteen Minutes a Day
   A Guide to Starting, Revising, and Finishing Your Doctoral Thesis
   By Dan Bolker, Ed.D.

3. How to Write a Lot
   A Practical Guide to Productive Academic Writing
   By Paul Silvia, PhD

4. Navigating Graduate School and Beyond
   A Career Guide for Graduate Students and a Must Read for Every Advisor
   By Sundar A. Christopher
Good notes are essential for meaningful learning
<table>
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<th>Keyword(s)</th>
<th>In my own words</th>
<th>What I don’t understand</th>
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Resources

• www.msphds.org

• *7 habits of Highly Effective People* (Covey)

• University counseling centers (free)

• www.phdcomics.com

• www.variablestargirl.com
Beyond graduate school

• “The Awesomest 7-Year Postdoc or: How I Learned to Stop Worrying and Love the Tenure-Track Faculty Life”
  (Radhika Nagpal, scientificamerican.com)
• Advice for New Faculty Members (Boice)
• National Center for Faculty Development and Diversity (NCFDD)
• Faculty/Staff Counseling Centers
• Make a list
  – not “To-do” but “For fun look here!”
• http://variablestargirl.com (“Slowing down in academia: Is it worth the risk? I say yes.”)
Personal Mission Statement

- Principle-oriented
- Prioritize based on values
- Make decisions (yes/no) based on
My personal mission statement

I live my life with **honesty**, **balance**, and a **sense of wonder** for the world and the universe, and I treat myself and others with **kindness**, **respect**, **love**, and **encouragement**.
Apply it to different roles

• Individual
  – Prioritize: REST, eat well, exercise, visit doctor/dentist regularly, spiritual nourishment, personal reflection, PLAY (hobbies, no end-goal) (balance)
Apply it to different roles

• Student/Postdoc/Faculty Member

Prioritize: SLEEP, Research, publish, educate, don’t overcommit (honesty, balance)
– Engage: Interactions with others at work (honesty, kindness, respect, encouragement)
Apply it to different roles

• Spouse
  – Be present (balance, love, kindness, respect)
    • Weekly date nights
    • Listen attentively
  – Include in all decisions (love, respect)
Apply it to different roles

- Daughter/sister
  - Call regularly (love)

- Friend
  - Be present (love)
    - Make regular time for (balance)
    - Ask about them (kindess, respect)
Logo design: Sang Eun Dawn Lee

RISING STARGIRLS
STARS SHINE IN MANY COLORS.
Few URM women with physics or astronomy bachelor’s degrees

Motivation

• Kids stop pursuing STEM long before college
  – Lack of self-confidence
  – Few role models (Weir 2007)

• Middle School is a critical time
  – Girls shift focus to physical appearance
    • Downplay mental aptitude, accomplishments
    • Low self-esteem, lack of self-confidence (Rakow 2009, Gurian 2012)

• Innovative approach targeting URM girls early

• Literary, role-playing exercises improve engagement in astronomy and astrobiology + confidence
  (Garland & Ratay 2007; Crider & Weston 2012).
More than the eye can see
Figure 2: Probabilities of Two Groups of 8th Graders in Earning a Baccalaureate Degree in Physical Science

Average achievers are more likely to earn degrees in physical science than the highest achievers when 8th grade career expectations are considered.

Tai et al. 2006
“Universe: More Than Meets the Eye”

• Teach core concepts in astronomy and astrobiology – hands-on approach
  – Scale, solar system + exoplanets, where life might exist, diff types of stars, constellations

• Creativity - artistic expression
  – Theater, writing, visual art core to each lesson

• Personal connection
  – Involve personal stories, “whole girl” approach
Pilot workshop

- Irving STEAM Magnet Middle School
  - Eagle Rock, CA
  - 80% Hispanic

- 10-15 girls ages 10-13 (100% Hispanic)

- Mon/Wed 3-5pm Feb 25-Mar 9, 2015

- Evaluation metrics included
Shared my personal story
Decorating “Playbooks”
Make your own constellations
(from Kelsey Johnson’s “Dark Skies, Bright Kids”, UVA)
One there was a rat who loved to eat pizza. He ate so much pizza he turned super fat. His mom told him to go to the gym. His mom gave him money for the gym and the bus. Instead of going on the bus to the gym, he walked to Carl's Pizza place. He ordered 30 boxes of pizza and he got fatter and fatter. Carl the owner called his mom and she got mad, she ran to the place. What the rat didn't know was that his mom could vanish people to the stars. His mom got so mad that she sent her son to the stars forever. Now when people look at the stars, they see a rat. That star is called pizza rat, and this is the story of pizza rat.
The distance of Earth to Saturn is 1,000,000,000,000 miles.
Solar system distance scale
Create your own mnemonic

M V E M J S U N

Very educated on key just at under Niagara Falls
Design your own exoplanet
Jano-6713

My planet is called Jano-6713. It has rare blue mountains. The sky is a really hot pink and purple. It has a purple/pink statue. My planet has 3 surrounding stars.
Impromptu games

The universe is amazing!

By Sarah O.
“I see myself as a science person”

![Bar chart showing the changes in the perception of being a science person before and after an intervention. The chart compares Strongly Disagree vs. Strongly Agree responses.]

- **Before**:
  - Strongly Disagree: 0.15
  - Strongly Agree: 0.2

- **After**:
  - Strongly Disagree: 0.05
  - Strongly Agree: 0.3
On choosing Pluto to do a project:
“I don’t want to do Pluto. It isn’t even a planet!” - Sarah

What comes to mind when hearing the word “Astrobiology”:
“I think of Mars, because we are trying to find life on Mars.” – Amahirany
“I think of the study of life on other planets.” - Anonymous
“Aliens.” - Anonymous

What did you like most about this workshop?:
“I liked the creative feature of this workshop. I would like to do more of it in the future.” - Anonymous
“I liked that we created our own planets.” - Anonymous
“Making the posters and drawing.” - Kiera

Irving participant: “What if we discovered a planet that looks just like the one I’m drawing?”
Me: “We totally could! That would be awesome!”
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My info

Email: ashields@astro.ucla.edu

Research website: www.variablestargirl.com

Outreach website: www.risingstargirls.org

Twitter: @aomawa