

# Assessing the MMA Intern Program's Impact on Science

## Curiosity Can Change The World

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**Maria  
Mitchell**  
Association

# Maria Mitchell

1818-1889

- Nantucket native
- Discovered telescopic comet
- First US female professional astronomer
- Original Vassar Professor
- Lifelong educator and scientist
- (<https://www.britannica.com/biography/Maria-Mitchell>)



**M**

**M**

**A**

**Maria**

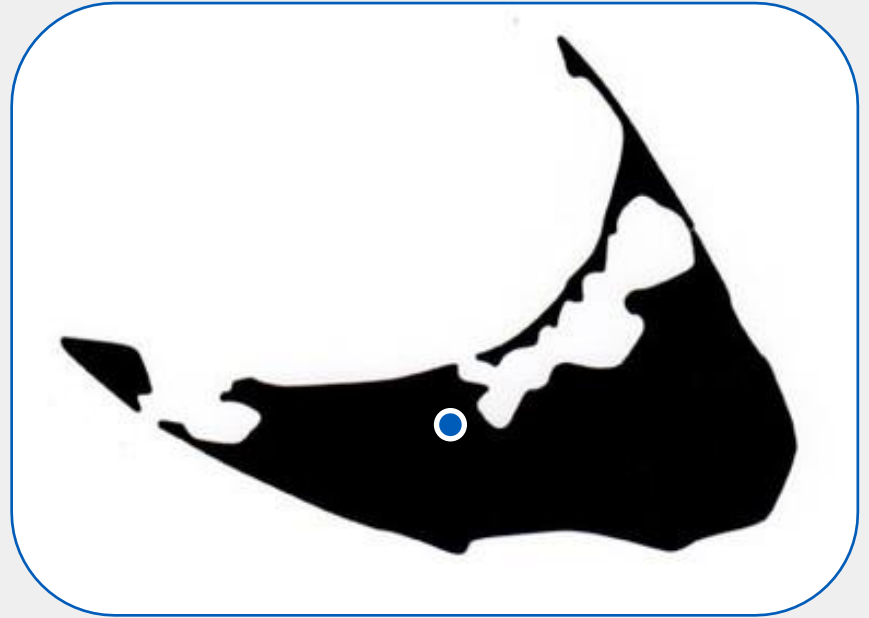
**Mitchell**

**Association**

- Founded in 1902 to preserve Maria Mitchell's legacy
  - Land, sea, & sky
  - Curiosity and hands-on learning

# MMA In Context

- 2nd oldest non-profit on Nantucket
- Oldest science organization on Nantucket
- \$3,000,000 in annual funding
- 16 buildings
- 14 full time employees
- 22,000 visitors per year



# What is an Internship?

Experiential learning opportunity in a professional setting



## Employment

14% higher interview rate for applications with internship experience

(Nunley, et. al., 2016)



## Career Decisions

Helps interns understand that major and career path are right choice

(Galbraith & Mondal, 2020)



## Academics

2.7% increase in final grades after internship

(Binder, et. al.)



# MMA

## Internships

- Administration
- Astronomy
- Education
- Historic Preservation
- Marine Science
- Natural Science

# Why?

- Internship program goes back to 1914
- No comprehensive record of interns' information
- MMA wants to celebrate and publicize the successes of their interns





# Project Goal

Compile a digital database of interns' experiences during their time at the MMA and assess the interns' impact on science





# Project Objectives

## Collect Data

Use research, surveys, and interviews to collect data

01

## Create Database

Compile results into shared database of interns' information

02

## Write Profiles

Highlight select interns through short profiles

03

## Design Visuals

Display the impact of interns through engaging graphics

04

# Methodology

01

## Research

Research in MMA reports and online to find information on interns

02

## Survey

Questions about interns' experiences during and after their internship

03

## Interview

In-depth talks with small group of interns about their unique journeys



**859**

Interns found

**511**

Interns contacted

**190**

Survey responses

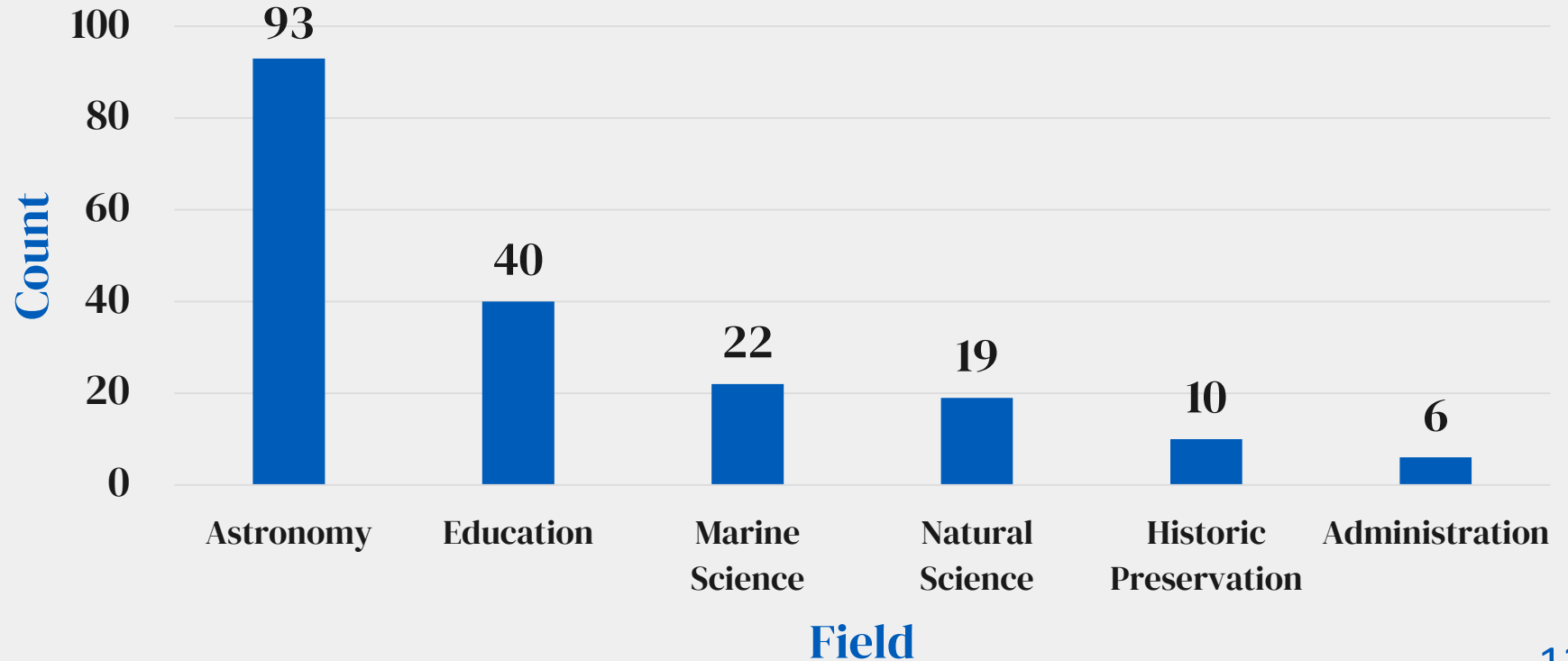
**22**

Interviews completed



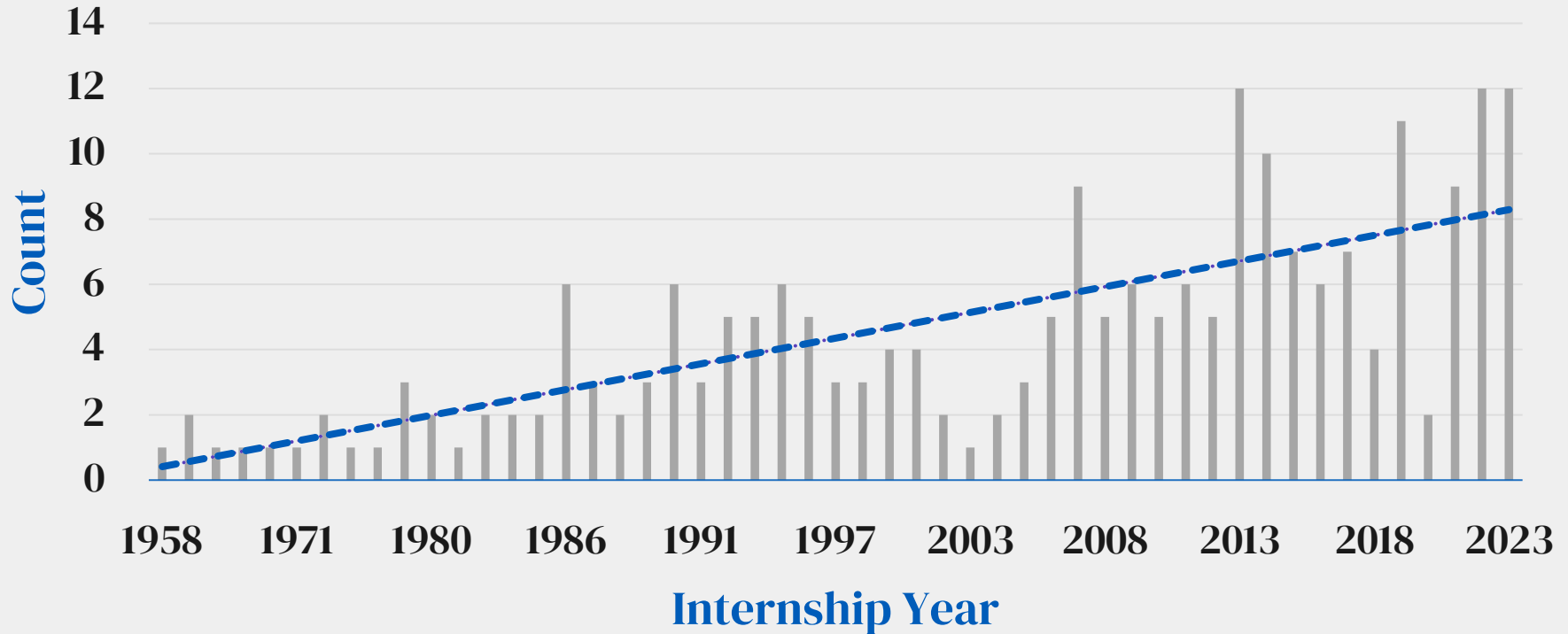
# Survey Results

## Respondents by Internship Field



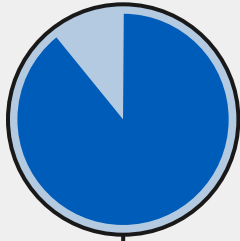
# Survey Results

## Respondents by Year





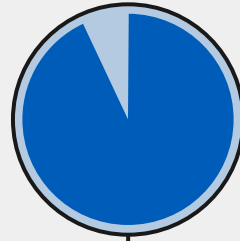
# Program Success



**88%**

## **Career Choice**

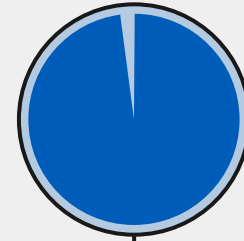
162 respondents say their internship helped them choose their career



**94%**

## **Skills**

169 respondents say they learned valuable skills during their internship



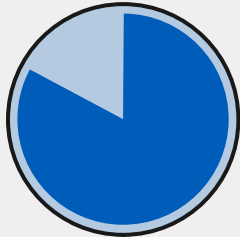
**98%**

## **Overall Experience**

176 respondents said they had a positive overall experience



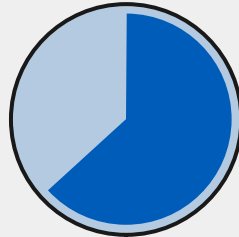
# Impact on Science



**85%**

**Research**

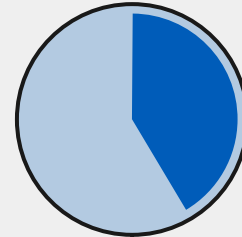
144 respondents  
have done research



**65%**

**Papers**

111 respondents have  
published at least one  
paper



**42%**

**Prizes**

70 respondents  
have won a prize  
for their work







# 148

Books written or contributed to

# 39

Patents held

# 5

TED Talks given



# Incredible Interns



**Cecilia Payne-Gaposchkin**

**1924:** Groundbreaking researcher into the composition of stars, first woman to head a department at Harvard



**Nancy Evans**

**1964:** Variable star researcher studying star formation, worked on Kepler and Chandra telescopes

# Incredible Interns



**Bonnie Buratti**

**1973:** Won the Gerard P. Kuiper Prize for her work in planetary science, current research fellow at NASA's JPL

<https://science.jpl.nasa.gov/people/buratti/>



**John Briggs**

**1977:** Instrumentation engineer and astronomical historian, runs an observatory and astronomical museum

<https://www.aavso.org/node/85883>

# Incredible Interns



**Helen Cheng**

**2009:** Marine biologist at Northeastern University studying the socio-economic impact of black sea bass and blue crabs

<https://www.wellsreserve.org/about-us/people/helen-cheng>



**John Weaver**

**2015:** Award-winning physics researcher, lead COSMOS2020 galaxy survey using custom photometry software

<https://www.linkedin.com/in/astroweaver/overlay/photo/>

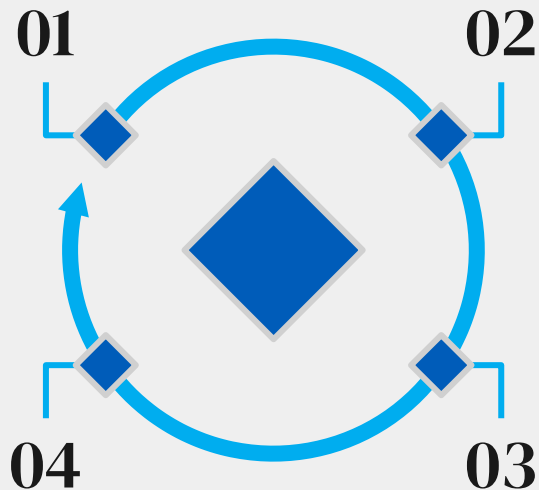
# Recommendations

## Research

Increase opportunities for research in non-astronomy fields

## Events

Create reunions to maintain a connection to alumni after their internship



## Networking

Help interns connect across fields to grow their networks

## Database

Update database yearly with new group of interns to ensure up-to-date info



# Recap

## MMA

Curiosity and hands-on learning, offers 35+ internships annually

## Data

Easily updatable database of survey responses

## Internships

Internships are mutually beneficial to students and companies

## Deliverables

Infographics and intern profiles to highlight impact

## Methods

Independent research, survey, and interviews

## Future

Update and maintain database, encourage alumni engagement



# Acknowledgements

- Professors [Fred Looft](#) and [Susan Jarvis](#), our incredible advisors on this project
- MMA Executive Director [Joanna Roche](#), our sponsor liaison
- [Everyone at the MMA](#) who provided assistance with this project
- All the [former interns](#) who participated in our survey and interviews





**WPI**



# Thanks!

## Questions? Comments?

Infographics



Profiles





# Ph.D. Schools



*Ucla*



**UMSL**



**R**

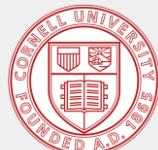


**Ψ**

**MIT**



**A**  
ARIZONA



# Current Companies

- Center for Astrophysics | Harvard & Smithsonian
- Comcast
- Exploratorium
- Jet Propulsion Laboratory
- Linda Loring Nature Foundation
- Maria Mitchell Association
- Max Planck Institute for Astronomy
- Museum of Science, Boston
- NASA
- National Institute of Health
- Oracle
- SETI Institute
- Smithsonian

And many more...