

Christine O'Donnell, MPP, MS

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Astronomer with a proven record of contributing to teams to develop, assess, and continuously improve innovative & inclusive evidence-based education techniques designed to connect science and society.

Education

Ph.D. Candidate

Astronomy & Astrophysics

University of Arizona | May 2020

Relevant non-astronomy coursework:

Whiteness & Education | Fall 2018

Master of Science

Astronomy & Astrophysics

University of Arizona | Dec. 2017

Master of Public Policy

University of Virginia | May 2014

Thesis: "Women in Physics: Reducing the Gender Gap at the College Level"

Bachelor of Arts

Astronomy/Physics

University of Virginia | May 2013

Awards

College of Science Service Award

University of Arizona | 2019

Attention to broader impacts and involvement in activities outside of academic responsibilities that benefit their department, university, and the larger community

University Fellowship

University of Arizona | 2014 - 2016

Prestigious fellowship awarded for interdisciplinary scholarship and leadership

D. Nelson Limber Award

University of Virginia | 2013

Top graduating astronomy student

Experience: Research

Astronomy & Astrophysics Research | University of Arizona |

08/2014 - present

Independent research project on dark matter accretion and galaxy formation; novel combination of survey data with cutting-edge theoretical simulations (advisor: Prof. Peter Behroozi)

Education Research | University of Arizona | 08/2018 - present

Collaborated on an inclusive course design for a general-education introductory cosmology course; publishing an article to share our design and guiding principles (advisor: Prof. Ed Prather)

Course Reform Project Assistant | University of Arizona |

08/2018 - 05/2019

Participated in an NSF-funded project to promote active learning; observed 6 course sessions using the Classroom Observation Protocol for Undergraduate STEM (COPUS)

Experience: Teaching (K-12 and College)

Teaching Assistant | University of Arizona | 01/2019 - 05/2019

TA for ASTR 201 (40 students; general-education introductory cosmology course); in addition to grading and weekly office hours, I developed a lecture-tutorial activity on gravitational wave detection

Instructor (4th Grade City Program) | University of Arizona Sky School |

12/2018 - 05/2019

Facilitated 6-8 4th grade students on a 3-day science inquiry activity investigating the students' observations of their school environment

Research Activity Instructor | Warrior Scholars Project (WSP) |

06/2017, 07/2018

TA for STEM week of WSP, an academic "bootcamp" for veterans returning to school: designed a week-long digital imaging lab activity (June 2018: 4 students); co-led a week-long exoplanet research investigation (June 2017: 5 students)

Participant in Professional Development Program | Institute for Scientist & Engineer Educators | 03/2018 - 09/2018

Collaborated on a team (4 participants) to create an astro-statistics activity following principles of science inquiry and equity & inclusion; facilitated the activity at a program for community college transfers to UC Santa Cruz intending to major in STEM fields

Experience: Instructor Development

K-12 Instructor Professional Development |

03/2019 - present

Facilitated sessions at professional development workshop:

- STEM on the Range (University of Arizona): developed a lesson plan on planetary orbits and lunar phases designed for Arizona space science standards (high school: 03/2019; K-8: 04/2019)
- STEMAZing workshops for kindergarten teachers in Marana Unified School District: provided subject matter expertise on Arizona space science standards about the Earth-Moon system

College of Science TA Training | University of Arizona |

08/2017, 08/2018

Organized registration (~100 participants) and sessions on grading, classroom management, and diversity; developed a new session about campus resources for teaching assistants

Experience: Outreach & Service

Science Speakeasy | Tucson, AZ | 04/2019

Piloted a new science cafe series with a flipped format encouraging small-group free-form dialog between scientists and the public; created a partnership with the March for Science Southern Arizona, a local non-profit, to host the events

Teen Astronomy Cafe | National Optical Astronomy Observatory |

03/2018 - present

Participated as a graduate student volunteer to facilitate the activities and talk with local middle-high school students about astronomy careers during monthly series on astronomy; I will lead a cafe in Spring 2020 about theoretical astrophysics research

Associate Graduate Council for the College of Science | University of Arizona | 08/2017 - 05/2019

Served as the council representative for the Astronomy & Astrophysics Department; elected to Vice-President (08/2017-05/2018) and President (08/2018-05/2019)

Independent Contractor | Sonoran Glass School (SGS) |

03/2018 - present

Assistant in the Flame Shop working with student groups (field trips and summer camps) on glass art experiences; volunteer during open house events at SGS

Astronomer | Project ASTRO | 08/2017 - 05/2018

Volunteered to work with a local 6th grade teacher to develop astronomy classroom activities

Public Research Talks | 10/2017 - present

Presented to various audiences about my astronomy research, including the Sonora Astronomical Society (03/ 2018)

Certifications & Workshops

Leader in Classroom Diversity &

Inclusion | University of Arizona | 2018

Certificate in Inclusive Inquiry in STEM

Education | Institute for Scientist & Engineer Educators (UCSC) | 2018

Safe Zone Certification |

University of Arizona | 2018

Presenting to Diverse Audiences |

University of Arizona | 2017

Alan Alda Center Science

Communication Workshop |

University of Arizona | 2017

Astronomy Ambassador |

American Astronomical Society | 2014

Technical Skills

Programming languages:

python, C/C++, STATA, R, IDL, Java

Software: Microsoft Office (Word,

Excel, & PowerPoint), Google G Suite

Publications

Full list available at:

http://bit.ly/CODonnell_publications

Rigby, J.; et al.; O'Donnell, C.:

"Astro2020 Must Issue Actionable Recommendations Regarding Diversity, Inclusion, and Harassment", *Astro2020 State of the Profession White Papers* | 2019

Gonzalez; A.; et al.; O'Donnell, C.:

"The Massive and Distant Clusters of WISE Survey. I: Survey Overview and a Catalog of >2000 Galaxy Clusters at $z \sim 1$ ", *Astrophysical Journal Supplement Series* | 2019

Mulroy, S.; et al.; O'Donnell, C.:

"LoCuSS: Galaxy Cluster Scaling Relations", *Monthly Notices of the Royal Astronomical Society* | 2019