# Catherine Slaughter

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## Education

2017–2021 **BA in Physics and Astronomy**, *Dartmouth College*, Hanover, NH, *3.49*.
Expected to graduate in June 2021. Studied abroad and participated in an observing run at SAAO in South Africa Jan-Mar 2019.
Senior Honors Thesis: *Refining the Age of the Universe Using Globular Clusters*

## Research Experience

2020–Present **Senior Thesis Project**, *Dartmouth College Dept. of Physics and Astronomy*, Chaboyer Group, Hanover, NH.
Implemented numerical analysis method from Dolphin 2001 along with Monte Carlo Main-Sequence fitting as done in O'Malley et al. 2017 to determine the ages of several nearby globular clusters with significantly decreased error. Doing so sets a hard lower limit for the age of the universe, potentially helpful for future research in the Hubble Tension
- *Refining the Age of the Universe with Globular Clusters* in preparation

Summer 2020 **Caltech Summer Undergraduate Research Fellowship**, *California Institute of Technology*, Harrison Group, Pasadena, CA.
Analyzed previously unused stray-light observations from NuSTAR in search of potential scientific use. Research conducted remotely due to COVID-19 pandemic.

2018–2019 **Undergraduate Researcher**, *Dartmouth College Dept. of Physics and Astronomy*, Chaboyer Group, Hanover, NH.
Worked calibrating DSED stellar evolution models against certain metal-poor subdwarfs.
- *Metal-Poor Calibrating Subdwarfs in the Gaia Era* submitted for publication July 2020
- Analyzed spectral data and measured emission line equivalent widths in splot
- Created model atmospheres using MOOG program

## Publications

Christina Gilligan, Brian Chaboyer, and Catherine M. Slaughter. Metal-Poor Calibrating Subdwarfs in the Gaia Era. *Submitted for Publication*, 2020.

## Honors and Awards

Nov 2019 **Francis L. Town Scientific Prize (Physics and Astronomy)**, Dartmouth College.
A prize offered annually to "one meritorious and deserving student in each department of scientific study at the College" at the end of Sophomore year.

## Poster Presentations

May 2020 **Wilder Department Symposium**, Hanover, NH.
"Refining the Age of the Universe Using Globular Clusters: Prerequisite Work"
Presented electronically due to COVID-19 Pandemic

May 2018 **Wetterhan Science Symposium**, Hanover, NH.
"Improving Metal-Poor Stellar Evolution Models"

## Grants

Summer 2020 **Caltech SURF Grant**.

Spring 2019 **Dartmouth College Undergraduate Leave Term Grant**, $5200.
Grant awarded to students conducting a term of full-time research.

2018–2019 **Dartmouth College Sophomore Research Scholar**, $2000.
Grant awarded to second-year students assisting faculty in their research.

## Teaching Experience

2019–Present **Dartmouth Emerging Engineers Tutor**, *Thayer School of Engineering*, Part-Time, Hanover, NH.
Tutor for first-year students taking introductory math, physics, and computer science courses.

2018–Present **Public Observing Guide**, *Dartmouth College Dept. of Physics and Astronomy*, Part-Time, Hanover, NH.

Summer 2019, Spring 2020 **Introductory Astronomy Teaching Assistant**, *Dartmouth College Dept. of Physics and Astronomy*, Part-Time, Hanover, NH.
Teaching assistant for an introductory astronomy course geared toward arts and humanities students.

Summer 2018 **Astronomy and Nature Guide**, *Carthage College in collaboration with the Appalachian Mountain Club*, Full-Time, Crawford Notch, NH.
Worked with the general public in order to educate about astronomy, spread awareness for environmental issues, and encourage certain social changes.
- Public observing
- Social media management

## Skills

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| Programming | C, Java, MATLAB, Python, VHDL | *Intermediate* |
| | PyRAF, Bash, HTML, CSS | *Beginner* |
| Computer | Terminal interface, LaTeX, DS9, MOOG, XSPEC, Anaconda, IRAF/PyRAF | |
| Language | English | *First Language* |
| | Spanish | *Conversational* |