

**Ava Polzin**  
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## Education

**Northwestern University**, Evanston, Illinois, 2016 - Present  
- Weinberg College of Arts and Sciences: Physics & Astronomy and Planetary Science (Geophysics) majors  
- Expected graduation, December 2018

**University of Southern California (USC)**, Los Angeles, California, 2014 - 2016  
- Resident Honors Program  
- Thematic Option (honors program)  
- Thornton School of Music: Music Industry major  
- Dornsife College of Letters, Arts and Sciences: Geological Sciences major

**Fulbright Summer Institute**, Queen's University Belfast, Northern Ireland, 2015

**Libertyville High School**, Libertyville, Illinois, 2011-2014

**Summer@Brown, *Music & Politics***, Brown University, Providence, Rhode Island, 2013

## Experience

**Organizing Committee Member, 2019 Conference for Undergraduate Women in Physics**, Northwestern University Society of Women in Physics & Astronomy, Department of Physics & Astronomy, Feb. 2018 – Present

**Tutor, N'Cat Tutoring**, Northwestern Athletics, September 2017 – Present  
Supervisor: Shuji Otsuka  
- Tutor student athletes in physics, astronomy, music, and earth science courses.

**Peer-Guided Study Group Facilitator**, Searle Center for Advancing Learning and Teaching, Northwestern University, September 2017 – Present  
Supervisor: Borislava Miltcheva  
- Run 2-hour weekly sessions, providing supplemental instruction for introductory physics courses.

**Intern, Large Synoptic Survey Telescope (LSST)**, Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA), Northwestern University, Supervisors: Dr. Aaron Geller, Dr. Adam Miller, June 2017 - Present  
- Use python code (based in the packages `elc` and `gatspy`) with a full-scale galactic simulation to determine a new minimum prediction for the LSST's eclipsing binary yield

over its ten-year run. This research will be fleshed out by determining the factors that impact binary detection and looking further at the idea of accurate identification of both binaries and their periods.

**Telescope Operator, Dearborn Observatory**, Northwestern University, Supervisor: Michael Smutko, May 2017 - Present (March-May training that year)  
- Run telescope, host events, answer questions pertaining to the field and observatory.

**Undergraduate research assistant, Micro-X Lab (Figueroa Group - PI: Dr. Enectali Figueroa-Feliciano)**, Northwestern University, Supervisors: David Goldfinger, Dr. Antonia Hubbard, December 2016 - June 2017  
- Triageed projects, ran and recorded computer tests for Transition Edge Sensors (TES), created a helium consumption simulation for the lab's dewars, and some hardware soldering. At supervisor suggestion, learned MatLab and Python outside of lab.

**Intern, Heavy Hitters Music Group**, Glendale, California, Supervisors: Cindy Badell-Slaughter (company president) and Nikole Luebbe: Summer 2016  
Broad internship in film/TV and publishing industry combined creative (A&R, music reviewing, working with artists) with pitching music and also licensing/clearance from the publishing side (and for interest in sync), metadata, promotion and marketing, and royalty collection:  
- Listened to and helped to select new artists to sign to the Emmy Award winning catalog, as well as music to be pitched to film and TV "creatives", put together professional playlists and descriptions, organized and edited audio files and cue sheet information, enhanced and helped run social media and website (set Heavy Hitters up on LinkedIn and maintained existing professional sites), actively contributed in creative meetings and to lists for music supervisors, and did general research (on existing and upcoming projects, contact and marketing info, and new music supervisors).

**Undergraduate research volunteer, Environmental Microbiology Lab (Nealson Group - PI: Dr. Ken Nealson)**, USC Dornsife College of Letters, Arts and Sciences, Supervisor: Casey Barr, Spring 2016  
- Trained for planned research in environmental microbiology scheduled to be carried out at Jet Propulsion Lab, Pasadena, California, Summer 2016. Made agar/sulfur plates, mixed medium, isolated samples for re-plating, ran autoclave and did necessary acid baths to ensure absolute sterility, fully organized and catalogued chemical shelves (keeping them in alphabetical order by non-reactive category), and assisted in setting up some basic electrochemical tests.

**Lakota Cultural Exchange Program (LCEP)**, 2009 - Present  
[www.thelakotaculturalexchangeprogram.org](http://www.thelakotaculturalexchangeprogram.org) (and <http://www.facebook.com/nikisnuts>)  
Now in the active planning stage: in collaboration with the Northwestern University Department of Physics & Astronomy as well as the NU Office of Institutional Diversity and Inclusion to bring half a dozen middle-school-aged girls and a couple of chaperones to the Chicago-area for a weekend-long astronomy workshop. Tentatively in motion for September 2018, the weekend will afford the girls the empowering opportunity to engage

with state-of-the-art facilities, women working in science and, ideally, a real research project that they will be able to take back to the reservation for continued study (in the style of citizen science).

Evolving from previous iterations, most recently with local efforts on Pine Ridge, where the *Girls Rock!* camp was established on the reservation, Summer 2016, and instruments were purchased for music program set-up in two reservation schools, Spring 2017. Currently in discussion with multiple groups, including Northwestern University's Physics Department, Society of Physics Students and Women in Physics & Astronomy, about creating summer outreach for girls to familiarize them with some STEM opportunities they would not otherwise have.

These collaborations and iterations reflect significant evolution in what began almost a decade ago, when created and, over several years, ran program to bring one teen girl per camp session from Pine Ridge Reservation in South Dakota to Chicago for cultural exchange and enrichment, first in self-defense and leadership training, and later in music. Over those years, worked with Lakota elders and Pine Ridge school officials, forged partnerships with directors of martial arts and rock camps in Chicago (where secured camp scholarships for guests), launched multiple fundraising efforts (in addition to covering flights and other exchange expenses for guests, including an effort that netted several thousand dollars for one guest's family to rebuild after fire destroyed their home), applied for and received grant for thousands of dollars to enhance camper and host-family experience with educational materials and instruments for the girls to take home to continue their practice, recruited host families and worked with liaisons on Pine Ridge to enlist interested girls, designed and implemented outreach successful enough to attract the support of an anonymous philanthropist, who funded the long-term goal of purchasing instruments for set-up of two schools' music programs, 2017.

## **Presentations and Publications**

*In preparation for submission to The Astrophysical Journal:* Polzin A, Geller A, Miller A, Breivik K. Exploring an Improved Method for Determining LSST's Eclipsing Binary Yield. 2018.

Polzin A, Geller A, Miller A, Breivik K. Exploring an Improved Method for Determining LSST's Eclipsing Binary Yield. Poster session presented at the Adler Planetarium and Northwestern Department of Physics & Astronomy for the 2017 CIERA REU; 2017 Aug. 17-18; Evanston, IL and Chicago, IL.

Polzin A. Becoming María Mandinga: The Value of Self-Definition and Its Journey in *Of Love and Other Demons*. Paper presented at What's Past Is Prologue: 18<sup>th</sup> Annual Thematic Option Research Conference; 2015 April 14-15; Los Angeles, CA.

## **Honors and Awards**

**Illinois Space Grant:** 2017-2018

**Bruce Fishkin Scholarship Recipient:** 2014-Present

**USC Deans and University Scholarships:** 2014-2016

**USC Academic Achievement Award:** Spring and Fall 2015

**Fulbright Summer Institute:** awarded for 2015

**USC Dornsife Summer Undergraduate Research Fund Recipient:** Summer 2015

**ANNpower/Vital Voices Leadership Forum Fellow:** 2014

**ANNpower/Vital Voices Grant Recipient** for independently estab. LCEP: 2014-2015

## **Interests/Activities**

**Society of Physics Students**, Northwestern University, 2016 - Present

- Elected President for 2017-2018 year; assumed duties April 2017

- Initiatives to date include establishing fundraising effort in conjunction with Dearborn Observatory, renovating office and undergraduate lounge in repurposing space as recruiting tool, planning monthly undergraduate events for prospective and current majors and minors, and working to enhance involvement with department.

**Society of Women in Physics and Astronomy**, Northwestern University, 2016 - Present

**Daily Northwestern**, Northwestern University, 2016 - Present

**Sigma Gamma Epsilon**, USC Earth Sciences Undergraduate Honor Society: 2015

**Trojan Marching Band**, USC: mellophone, 2014 - 2016

**USC Men's Crew:** coxswain, 2014 - 2016

**Seido Karate:** 2003 - Present (preparing to resume actual focus on second-degree black belt at Thousand Waves Martial Arts and Self-Defense Center in Chicago, and delivering training in adapted self-defense training to disabled children and teens through Rehab Institute of Chicago)

- First-degree black belt, 2012