

Heather Rose

*Alternative Water Treatment and
Food Sustainability Researcher*

heatherrose@utexas.edu

<https://heatherscarlettrose.com/research>

Employment

Webber Energy Group, University of Texas at Austin

Sep. 2018 - present

- Graduate Research Assistant
- Research Area Focus: Onsite water treatment for rainwater and hydroponic wastewater
- Relevant Courses: Water Resources Planning, Water and Wastewater Treatment, Fluid Dynamics, Physical Hydrology
- Experience working in Python and R for data analysis

Webber Energy Group, University of Texas at Austin

Jun. 2016 - Aug.2018

- Undergraduate Research Assistant
- Building and designing a solar powered rainwater drip irrigation system and rooftop garden for Green Roof on UT campus
- Analyzing water usage data for modeling system size and energy requirements to treat and deliver harvested rainwater to a residence
- Designing, building and running hydroponic systems
- Designing and running an experiment for regrowing food waste hydroponically

CleanTX, Austin TX

May 2017 - present

- Chief Operations Officer
- Content developer for website and social media, including video interviews, livestream, etc.
- Event coordinator, including planning and running events for CleanTX
- Experience writing grants for funding white papers

Applied Research Laboratories, Austin TX

Sep. 2014 - May 2018

- Student Technician, webmaster for www.texasacoustics.org
- Worked with Wordpress
- Kept website updated, and developed new content such as research videos

Teaching Experience

College of San Mateo, San Mateo CA

Fall 2013 - Spring 2014

- Teaching Assistant, Harmony and Ear Training Courses
- Conducted supplementary Ear Training sessions
- Tutored students in Harmony and Music Theory

Cunha Middle School, Half Moon Bay CA

Spring 2014

- Teaching Assistant, 8th Grade Math

Heather Rose

*Alternative Water Treatment and
Food Sustainability Researcher*

Private Guitar and Voice Instructor, San Francisco Bay Area CA

2011 - 2014

- Taught voice and guitar to private students and small groups
- Taught music theory, ear training, composition, and performance skills

Education

University of Texas at Austin, Austin TX

Sep. 2018 - May 2020

Graduate Student in Jackson School of Geoscience
Master's Program in Energy and Earth Resources

University of Texas at Austin, Austin TX

Graduated May 2018

-Bachelor of Science in Physics

Berklee College of Music, Boston MA

Graduated May 2010

-Bachelors of Arts in Professional Music

Projects

Water Treatment for Hydroponic Systems, University of Texas at Austin

Jun. 2018 - present

- Building and running a hydroponic flood and drain system
- Researching current methods for onsite water treatment
- Developing a model for onsite water treatment of hydroponic wastewater for reuse based on energy requirements, space capacity, turn-around time and cost

**Rainwater Harvesting Treatment and Delivery,
Energy Requirements and Sizing Analysis**

Jun. 2017 - May 2018

- Analyzed residential water usage data from Water Research Foundation Study in 2016
- Analyzed system energy and cost requirements based on system configuration, "On-Demand" versus "Pressurized Store" systems
- Research published in *Water* in August 2018, see Publications

ReGrow Project, University of Texas at Austin

Sep. 2017 - Aug. 2018

- Experiment comparing water and energy requirements for Regrowing plants from food scrap versus from seed in a hydroponic raft system.
- Funded by UT Green Fee Grant
- <https://heatherscarlettrose.com/regrow-project>

Heather Rose

*Alternative Water Treatment and
Food Sustainability Researcher*

S.W.E.A.T. Lab Rooftop Garden, University of Texas at Austin

Sep. 2016 - May 2018

- Solar, Water, Energy and Thermal Lab
- Design, and construction of a solar powered drip irrigation system and rooftop garden
- Funded in part by previous Green Fee grant
- <https://heatherscarlettrose.com/sweat-lab>

Publications

H.S. Rose, C.R. Upshaw, M.E. Webber, "Evaluating Energy and Cost Requirements for Different Configurations of Off-Grid Rainwater Harvesting Systems," *Water* 2018, 10(8), 1024 <https://doi.org/10.3390/w10081024>

American Society of Civil Engineers (ASCE)

June 2018

EWRI Congress, Minneapolis MN

Conference Presentation

Energy and Power Efficiency and Cost Comparison of Battery vs.

End-use Water Storage for Consumption as Means of Solar PV Energy Storage

American Society for Engineering Education Gulf-Southwest Section (ASEE-GSW)

April 2018

Annual Conference, Austin TX

Conference Presentation

[*Development of a Rooftop Collaborative Experimental Space through Experiential Learning Projects*](#)

Awards

Energy and Earth Resources Fellowship

Awarded August 2018

University of Texas at Austin Green Fee Grant

Awarded August 2017

Awarded for pursuit of ReGrow Project

Kent and Linda McCormack Scholarship in Physics

Awarded December 2017

Personal

Apart from her research in water and food sustainability, Heather is also a musician. She is primarily a singer-songwriter with guitar and voice as her main instruments. She has recorded several albums with different musical groups and currently plays out in the Austin area. Heather also loves to garden and is passionate about sustainable food production. Although she currently does not have a dog, she hopes to soon adopt a rescue. Heather is originally from the San Francisco Bay Area, has lived in Boston Mass for four years and moved to Austin in 2014. She has roadtripped across the US several times, and in the Summer of 2018 traveled to Ireland, Portugal, Austria and Hungary.