Curriculum Vitae

Alex Fox

University of Wyoming
Botany Deptartment
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Educational Background

2020

PhD Hydrologic Science, *Lab of Brent Ewers, Botany Department, University of Wyoming*, Laramie, WY.

2014 – 2018

BA Physics and Mathematics, *Oberlin College*, Oberlin, OH.
Majors in Physics and Mathematics, Concentration in Astrophysics

Research Experience

Graduate Research

2020

Evaluating Agricultural Sustainability of Perennial Grains using First-Principles Biophysical Model, *Lab of Professor Brent Ewers*, University of Wyoming, Laramie, WY.

Applying first-principles of biophysics to make sustainable land management decisions in agroecosystems in Eastern Wyoming.

2020

Studying Recovery from Disturbance Along a Climatic Gradient in Snowy Range, WY, *Lab of Professor Brent Ewers*, University of Wyoming, Laramie, WY.

Using a biophysical model to understand how forest response differs accross ecosystems and altitude to disturbance from beetles and fire in the Snowy Range, WY

Undergraduate Research

2017

Simulating Precession and Nutation in Dynamical Black Hole Systems, *Summer Research Project*, Lab of Professor Rob Owen, Oberlin College.
Oberlin, OH

Evaluating the ability of post-Newtonian approximations of numerical relativity simulations to predict axial precession dynamics in binary black holes systems used to validate LIGO gravitation wave observataions.

2016

Study of a Rigorous Generalization of the Aubry-André Harper Quantum Hall Effect Model, *Summer Research Project*, Lab of Professor Christoph Marx, Oberlin College.
Oberlin, OH

Research Interests

First-Principles Biophysics
- Agricultural Sustainability
- Disturbance Response
- Plant Physiology
- Ecological Modeling

OTHERS
- Data Science

Teaching Experience

Teaching Assistant

2021

Forest Management, *University of Wyoming*, Laramie, WY.
SUPERVISOR Professor Scott Miller

Principles of ecological forest management and sustainable silviculture.

2020

Water Resources Seminar, *University of Wyoming*, Laramie, WY.
SUPERVISOR Professor Scott Miller

Building research and presentation skills in a class focused around global water resource issues.

2018

Energy Science & Technology, *Oberlin College*, Oberlin, OH.
SUPERVISOR Professor John Scofield

Teaching quantitative reasoning and critical thinking skills through the topic of modern energy generation policy and technology.

Private Teaching

2017

Physics, Mathematics, Writing, Research Skills.
Sporadic private tutoring to high school, college, and graduate students

Participation In Events

2017

Ohio College Summer Research Symposium, *Ohio Wesleyan University*, Delaware, OH.

Other Professional Experience

2019

Field Technician, *Lab of Professor Brent Ewers*, University of Wyoming, Laramie, WY.
Studying post-fire and -beetle disturbance recovery in the Snowy Range, WY. Help to maintain the Chimney Park Ameriflux site, perform data QA/QC, and performed field data collection.

2019

Research Assistant, *Cooperative Institute for Satellite and Earth System Studies*, College Park, MD, Studying crop evapotranspiration using satellite remote sensing models.

2018

Research Intern, *The Land Institute*, Salina, KS.
Assisted in sustainable agriculture research, focusing on the development of perennial polycultures. Performed field work and data collection for plant breeding programs

Publications

[Owen et al., 2019] Owen, R., **Fox, Alex S.**, Freiberg, J. A., and Jacques, T. P. (2019). Black hole spin axis in numerical relativity. *Phys. Rev. D*, 99:084031.

Talks and Presentations

2017

The Precession and Nutation of Dynamical Black Holes, *Ohio College Summer Research Symposium*, Ohio Wesleyan University, Delaware.
OH

Grants and Funding

2021
2024

2021 Western SARE Professional + Producer Grant, *Kernza® in Wyoming: Evaluating Perennial Grains to Revitalize Wyoming Dryland Agriculture*, PI: Professor Jay Norton, University of Wyoming, Project #OW21-363.

Award $74,804

2021

2021 Grant A Harris Fellowship, *Kernza® in Wyoming: Modeling Water/Nutrient Cycling and Yield for a Perennial Grain*.

Award $9,614

Pending

2021

2021 Wyoming NASA Space Grant Consortium Graduate Research Fellowhip, *Evaluating Agricultural Sustainability Using a First-Principles Biophysical Model*.