Indige-FEWS Minor

Combines classwork, internships, teaching, research, special projects, seminars, cultural immersion and community interactions to enable trainees to tackle critical real world FEWS problems with an understanding of the cultures and sovereignty of Indigenous peoples.

- integrates fundamentals of systems thinking into design of FEW systems.
- MS trainees are expected to take 2 courses.
- PhD trainees are required to take the Minor, 4 courses.
- The Indige-FEWS minor is open to all UA students.

UNIT OPERATIONS
CIVE 34 - Sustainable Water Supplies for Remote Communities

SYSTEMS
EE 579 - Applied Instrumentation for Controlled Environment Agriculture
BESM - Integrated Engineering Solutions in the Food-Energy-Water Nexus
ENVS 605 - Water Policy in Arizona and Semi-Arid Regions
GEOG 596 - Water Management and Policy

FUNDAMENTALS
ECE/OPTI 314A - Photovoltaics for Solar Energy Systems
ECE/MTS/OPR 504 - Advanced Topics in Optical and Electronic Materials
MSE 530 - Organic Electronic Materials
MSE 590 - Materials Selection for the Environment

SOCIETY
AIS 528A - Principles of Indigenous Economics
AIS 531A - Traditional Ecological Knowledge
AIS 541A - Natural Resource Management in Native Communities

Research Projects will develop sustainable, real-world food, energy, and water solutions for off-grid production of safe drinking water, brine management operations, and controlled environment agriculture systems.

Themes: innovative photovoltaics; holographics; sensors and controls; unit operation technologies; and material, device, and systems resiliency.

For More Information:
www.energy.arizona.edu/indige-fewss
NSF Grant # DGE1735173
Goal: To develop a diverse workforce with intercultural awareness and FEWS expertise to address Food, Energy and Water challenges in Indigenous communities.

Problem-Solving

Developing technical solutions to food, energy and water challenges requires an understanding of Indigenous societies, their governance and culture, and the ability to work effectively in these contexts.

Challenge

Worldwide, ~370 million Indigenous people live in over 90 countries. Indigenous people are approximately 5% of the world population, yet they represent 90% of cultural diversity and hold 20% of the land that maintains 80% of the world’s remaining biodiversity.

Indigenous people often lack access to energy, water, and food infrastructure:
- 14% of U.S. Native American households lack access to electricity.
- 35% of dwellings on the Navajo Nation are not connected to central power or portable water.

What
- $34,000 stipend
- Full tuition remission
- 1 year of funding for MS Trainees
- 2 years of funding for PhD Trainees
- 10-week summer internship
- Immersion at Navajo Nation

Who
- Master’s and doctoral STEM students in a research-based degree program that requires a thesis or dissertation
- U.S. citizens and permanent residents
- International students may participate as non-stipend-supported Trainees

Where
- At the University of Arizona in Tucson, AZ
- At Diné College in Tsaile, AZ, our partner on the Navajo Nation

When
- Enrolling 2018 to 2021
- Once a Trainee, always a Trainee

Traineeship Areas of Study
- Biosystems Engineering
- Chemical Engineering
- Electrical & Computer Engineering
- Environmental Engineering
- Environmental Sciences
- Materials Science Engineering
- Optical Sciences
- Systems & Industrial Engineering