

Interdisciplinary doctoral training program

Water-Energy-Food (WEF) Nexus Research to Impact: Pennsylvania and Global Partnerships

The WEF Nexus is an integrative framework for novel research to address complex challenges of sustainable and equitable resource management, economic development, and climate resilience. Graduate student fellowships are currently available at Penn State University for doctoral work on the WEF Nexus. Examples of research topics include sustainable irrigation sourcing and treatment; urban-rural land use, water quality, and energy; WEF drivers of agricultural and forest sustainability; WEF sustainability of indoor urban agriculture; and WEF nexus of cacao production systems.

The successful candidates will enter in Fall 2023 as a cohort (an interdisciplinary group) under the College of Agriculture Sciences (CAS) Strategic New Initiatives Program (SNIP) and receive transdisciplinary training and cross-departmental mentorship to advance research and enhance impact. Cohort students will receive and help shape cohort building activities including training in WEF-related analysis and tools, a unique transdisciplinary research landscape seminar, people- and project-management skills, mentoring of undergraduate students, grantsmanship and science communication, and professional development.

Candidates must apply and be admitted to one of the graduate programs below. To be considered for a WEF Nexus cohort fellowship, candidates are strongly encouraged to apply before the program-specific application date and indicate interest in the WEF Nexus cohort in their application cover letter. They should feel free to contact the faculty members listed.

- **Food Science** (due date - December 15, 2022)
<https://foodscience.psu.edu/graduate/apply>
Jasna Kovac, Assistant Professor, jzk303@psu.edu
- **Ecosystem Science and Management** (due date – December 15, 2022)
<https://ecosystems.psu.edu/graduate/apply>
Christopher Scott, Goddard Chair and Professor, cascott@psu.edu
- **Energy, Environmental, and Food Economics** (due date - January 3, 2023)
<https://aeese.psu.edu/graduate/eefe/how-to-apply>
Daniel Brent, Assistant Professor, dab320@psu.edu
- **Plant Science** (two fellowships available, due date - January 6, 2023)
<https://bulletins.psu.edu/graduate/programs/majors/agricultural-environmental-plant-science/#text>
Francesco Di Gioia, Assistant Professor, fxd92@psu.edu
Siela Maximova, Research Professor, snm104@psu.edu

Candidates from historically and currently marginalized groups are particularly encouraged to apply. Commitment and demonstrated ability to work both independently and as part of a team are required.

Funding: All five positions will be funded on research and teaching assistantships for four years (with all cohort students required to start together in Fall semester 2023). Each position includes a competitive stipend, summer support, tuition waiver, and health insurance.

Cohort students will have the opportunity to work with ongoing Penn State WEF initiatives such as:

- **Americas WEF Nexus Alliance**, centered on Colombia, supported by Penn State Global
- **Pennsylvania WEF Nexus and Energy Transitions**, supported by the Maurice K. Goddard Chair
- **SustainFood, Network of WEF Networks**, supported by the National Science Foundation, <https://sustainfood.psu.edu/>
- **India Solar Irrigation Project**, supported by Penn State's Institutes for Energy and the Environment
- **Northeast SARE: Sensor-Based Precision Irrigation System for Tree Fruit and Vegetable Crops**, https://projects.sare.org/sare_project/Ine19-378/
- **Advance Penn State Precision Agricultural Program on Specialty Crops Through Multi-Dimensional Missions**, funded by SNIP