

RESEARCH ASSISTANT/ASSOCIATE PROFESSOR BIO-UTILIZATION AND ECOLOGICAL ENERGETICS



Department of
**BIOPRODUCTS AND
BIOSYSTEMS ENGINEERING**

UNIVERSITY OF MINNESOTA

Public awareness and the science of climate change, fiscal and ecological costs of agricultural and energy production, and environmental sustainability, have led to a bio-based revolution that is fundamentally changing how we produce and consume food, feed, fiber, fuel, chemicals, and energy. Minnesota and the Upper Midwest are leaders in the production of biofuels and bioproducts and can play a leading role internationally in transitioning to a low carbon, sustainable bioeconomy. The Minnesota agricultural and forest products industries are major energy consumers as well as suppliers of renewable energy, chemicals, and materials. These industries, however, offer unique opportunities for both decarbonization (reducing emissions) and recarbonization (pulling carbon from the atmosphere) compared to other industrial sectors.

With a growing demand for ecosystem services and carbon sequestration from the agricultural and forestry industries, the Bio-utilization and Ecological Energetics faculty position will focus on the increasingly complex energy flows and transformations required in the making of various products and materials within these industries. More specifically, this position will develop low-carbon, clean energy systems and technologies to convert Minnesota's diverse bioresources into the next generation of low-carbon biofuels and value-added bioproducts, and in doing so, help Minnesota agricultural and forestry sectors reduce their environmental footprint while improving the bottom line. For example, while corn-based biofuels manufacturing is at a mature stage in Minnesota, complete valorization of other bioresources such as soybean, oil seeds, and other biomass streams, is yet to be fully realized. Soybeans for example, have a significant potential for value added products such as protein-based food products, bio-based plasticizers (substituting petroleum-based phthalates, which are known, hormone inhibitors), bio-composites, bio-lubricants and biodegradable plastics, in addition to the well-recognized uses for cooking oil, biodiesel and animal feed. This position is poised to leverage recent investments by the State of Minnesota in the Agriculture Innovation Campus, Crookston, MN; Renewable Energy Demonstration Center, Morris, MN, and the Biomanufacturing Initiative being developed at the U of M, focused on accelerating the growth of Minnesota and region's bio-based economy, and other resources across the state.

This faculty position is non-tenure track, 9-month appointment as a research assistant or associate professor (75% research and 25% teaching) position to be located either at the Northwest Research and Outreach Center (NWROC) in Crookston or more likely the West Central Research and Outreach Center (WCROC) in Morris. Teaching and advising responsibilities for the position include core coursework in the Bioproducts and Biosystems Engineering and the Sustainable Systems Management programs. Significant outreach opportunities also exist for educating engineers and business professionals in various bio-resource industrial sectors throughout the state. The faculty is expected to collaborate with existing BBE faculty and travel periodically to the BBE department at St. Paul campus for collaboration and departmental events.

Qualifications

Required:

- Ph.D. in an engineering or science discipline, with applications to bioresource conversions to biofuels and value-added bioproducts
- Evidence of potential to develop a successful independent research program
- Demonstrated commitment to teaching
- Demonstrated effective written communication skills

Preferred:

- Research or industrial experience in biobased product development and sustainability
- Demonstrated and relevant publication record or industrial experience
- Experience in effective teaching including active learning, online instruction, and course development
- Evidence of collaborative research
- Strong communication skills
- Demonstrated commitment to diversity and inclusivity in an academic or professional setting and commitment to supporting the University's goal of creating a positive and inclusive campus climate by advancing diversity, equity, and inclusivity

About the Department of Bioproducts and Biosystems Engineering

The Department of Bioproducts and Biosystems Engineering (bbe.umn.edu) is an internationally renowned academic unit with the core mission of sustainable use of renewable agricultural and natural resources, and protection and enhancement of the environment.

How to Apply

Applications must be submitted online at humanresources.umn.edu/content/find-job.

Search for Job ID 357070. To be considered for this position, please click the Apply button and follow the instructions. You will have the opportunity to complete an online application for the position and attach a cover letter and resume. Additional documents may be attached after the application by accessing your "My Job Applications" page and uploading documents in the "My Cover Letters and Attachments" section.

Applications should include a cover letter referencing the BBE biochemical engineering faculty position, detailed curriculum vitae, statements on teaching and research interests, and a list of three references with contact information (including email addresses). Review of applications will begin October 16, 2023 and continue until the position is filled.

During the interview process, applicants will be asked to describe their commitment, experience, and approach to teaching and working with students, colleagues and constituents from diverse populations.

This position will remain open until filled. To request an accommodation during the application process, please e-mail employ@umn.edu or call (612) 624-UOHR (8647).