

MSE 499 Research Credit

Making The Cutting Edge of Modern Packaging Materials: Anti-Microplastic Coatings, Films, and More

Did you know the average person can consume approximately 0.03 milligrams of plastic debris per kilogram of body weight daily just from single-use cups like what morning Starbucks is served in? This can translate into 75,000 micro pieces of plastic entering your body for every three cups of coffee—which means for many people, they get all that plastic in their system before lunch every day.

Do you want to make a difference in the world by reducing microplastic streams? What about getting experience working with a start-up company at the forefront of sustainable, anti-microplastic packaging? We are looking for bold and brilliant researchers to help us develop modern, cellulose-based packaging materials to be brought into industrial production. We want to explore packaging options including single-use service-wear from coffee cups and lids to take-out containers and beyond—beyond like developing advanced composite and laminate polymer structures for use in complex processing and production.

This research is open to multiple possible research positions for course credit. We want to provide solutions for industry producers planning on taking the fruits of this sustainable research into commercial production to get these products onto the open market to prevent microplastics from getting into the environment and keep them from getting into us, you, and everyone else.

If you have questions or want to join our research team, please contact the Youngblood Idea Laboratory:

- Dr. Jeffrey Youngblood: jpyoungb@purdue.edu
- Darien Dewar: ddewar@purdue.edu

Interested applicants, please share your resume/CV in your initial contact and provide us with a brief explanation for why you would like to be a part of this important work. Letters of reference are not required but will be considered if supplied.

If you are interested in learning more about our industry partners and learn about plastic waste check out Greenshoot Materials at: <https://greenshootmaterials.com/>

To stay up to date on Greenshoot Materials' mission to eliminate plastic pollution, consider joining their website newsletter.

Supporting Documents:

<https://hscnews.unm.edu/news/cup-contamination-research-reveals-alarming-microplastic-levels-in-beverages>

Joseph, A. et al., “Drinking hot beverages from paper cups: lifetime intake of microplastics”. *Chemosphere*, Vol. 317, March 2023. <https://doi.org/10.1016/j.chemosphere.2023.137844>