



UNIVERSITY OF DELAWARE
**DELAWARE ENERGY
INSTITUTE**



UNIVERSITY OF DELAWARE
**DELAWARE
ENVIRONMENTAL INSTITUTE**

**PFAS Seed Grant Opportunity (UD Internal)
Deadline: December 15, 2022**

The Delaware Environmental Institute (DENIN) and the Delaware Energy Institute (DEI) invite University of Delaware researchers to apply for seed funding focused on achieving research results and building capability focused on per- and poly-fluoroalkyl substances (PFAS). PFAS compounds, sometimes referred to as “forever chemicals”, are widely used and pervasive in the environment; exposure may be linked to harmful health effects in humans and animals.

This is a UD-internal funding opportunity financially supported by DEI and DENIN, with two fundamental goals: (1) To help position interdisciplinary research teams to be competitive in future research funding applications; and (2) To grow cross-university, interdisciplinary collaborations in areas that tap research strengths. Applicant teams should have faculty representation from at least two different UD departments. At least one faculty team member must be a DENIN affiliate and one must be associated with the DEI.

Teams may propose different end goals for the PFAS seed grant research. For example, teams may propose ideas to investigate degradation, transformation, remediation, safe removal, human exposure and other fundamental goals for the work. Discussion of cost, energy use and economic viability are encouraged. These goals are provided for illustrative purposes only.

Proposals should describe the team’s relevant expertise and how this expertise will be applied in the proposed work. Successful proposals will lay out a clear vision for the team, and a clear vision for impact of the research. Teams should also identify specific grant targets of interest for future proposal submissions. Proposals will be reviewed by a team of UD faculty and external reviewers.

Seed grant options:

Tier I Seed Grants: Teams may propose work for one year, with a budget of up to \$90,000.*

Tier II Seed Grants: Teams may propose work for up to two years, with a budget of up to \$180,000. Tier II Seed Grants must state specific Year One milestones.*

*Please note that faculty salary and indirect costs are not permitted in the seed grants.

Format:

Proposals are limited to six pages. Guidelines for the length of sections are provided below.

Include the following sections in your proposal:

Overview and Rationale: Describe the need for the research, and gaps that can be addressed by the work. (One page)

Research Plan: Describe the planned work, and hypotheses/research questions to be addressed. (Two pages)

Team and Expertise: List the names of the UD faculty, students and professionals who will carry out the work and any external partners that may be involved. Describe the relevant expertise of each person supported by the seed grant. (1/2 page)

Future Grant Targets: List future grant applications for PFAS-relevant research for which the team will be positioned to pursue. (1/2 page)

References Cited: (One page)

Budget: Provide a budget for the proposed work, along with a budget justification narrative. Indirect costs and faculty salary are not permitted in the seed grant budget. (One page)

Questions about this seed grant opportunity may be addressed to: Amy Slocum at als@udel.edu.

Compile your proposal into a single .pdf file and submit your seed grant application to Amy Slocum at als@udel.edu.

Proposals are due December 15, 2022. Review begins in January 2023, and selections will be announced in late January 2023.

APPENDIX

UD PFAS Workshop Findings

DEI and DENIN co-hosted a university wide PFAS workshop in July 2022. Several key areas and gaps were identified, shown below. Please keep these internal.

1. Novel materials for sorption and/or membranes that can concentrate the PFAS for storage or destruction. A key element, especially in wastewater but also possibly in ocean water, is selectivity to the various components present in water in various locations. We need materials which are selective, have high capacity, are cheap, and can be regenerated. Activated carbons and cyclodextrins were mentioned but one could think of MOFs, micro/mesoporous zeolites, functionalized carbons, resins/polymers, etc. Also, can molecular complexes such as cyclodextrin and polyols from biomass in general can be effective for concentrating these streams using molecular complexation in water due to size and solubility?
2. Deconstruction methods. A few keywords were discussed (microbes, photocatalysis, electrocatalysis, plasma, catalysis, etc.). No clear winners are known, and an exploration of various methods is needed. Ideally one could combine two or more of these to treat them all.
3. Analytical methods.
 - a. Measuring ppt is very challenging and not possible at UD.
 - b. Model compounds in high concentrations may give too many different products
 - c. Need to develop an analytical lab combining techniques and expertise across campus. We need to develop an inventory of infrastructure.
4. Prioritize. Where can we have the biggest impact (discussed in room 3)?
 - a. In terms of location, site? In terms of expertise?
5. Regulatory aspects, economics and policy. TEA (technoeconomics) can be important for selecting technologies.
6. Workforce Development will be needed.