

Safer Alternatives to PFAS Research Grants

Introduction

The Toxics Use Reduction Institute (TURI) is pleased to invite proposals from academic faculty for financial support for research to identify, evaluate, and/or develop safer alternatives to PFAS. This program provides research funding to faculty and their graduate students on a competitive basis, encouraging university and industry partnerships. Faculty from any academic institution located in Massachusetts are eligible for this research funding.

Each year the number of academic research grants awarded is contingent upon the amount of funding TURI receives from the Massachusetts legislature, and the quality of the proposals received. Typically, this has resulted in TURI funding between 2 to 4 research projects annually. Since 1992, over 100 research projects from the Massachusetts universities have been supported by TURI.

Research Focus Area

Per- and polyfluoroalkyl substances (PFAS) are toxic chemicals used for a variety of manufacturing and product applications. Proposals should be submitted to identify, evaluate, and/or develop safer alternatives to the use of PFAS in manufacturing and product applications. Some examples include:

- Water and stain resistant coated fabrics, textiles, and footwear,
- Surfactant applications including fume suppressants,
- Refrigerants,
- Coolants,
- Manufacturing processing aids,
- Coated food packaging, and
- Other non-stick coated materials

Proposed research may focus on new processes, materials and/or chemicals that can significantly reduce or eliminate the use of PFAS. TURI does not fund research for end-of-pipe technologies, such as pollution control, treatment or remediation.

Research Project Budget

The maximum funding amount for each research project is \$35,000 per academic year. Recipients will have the opportunity to apply for the renewal of funding for subsequent years. This program emphasizes the importance of graduate student engagement, and the bulk of the funding provided is intended to compensate graduate students actively involved in the research. Strong preference will be given to proposals where the TURI funded research will be the same topic as the graduate student's master's thesis or doctoral dissertation.

Budgets must be developed for proposed research projects, and must consider the following:

- Graduate student stipend and tuition/fees should be included. For one-year projects, TURI prefers to fund full time (18 hrs/week) research assistants (RA), who will be eligible to receive a full time RA stipend and full tuition waiver¹.
- Graduate student time during non-academic year periods is optional and may be included (e.g., during winter and spring breaks and the period from the end of the academic year to the end of TURI's fiscal year, June 30, 2024). The total budget allocated for non-academic periods should **not exceed \$4,000 per year**.
- Costs for graduate students that elect health care coverage
- Undergraduate students can provide additional assistance to the research on an hourly contract basis. These costs should **not exceed \$3,000 per year**.
- Testing services, materials, equipment, and/or supplies, should **not exceed a total of \$3,000 per year**. All purchase requests must be submitted to TURI no later than May 1, 2024.
- Travel expenses and non-student compensation (e.g., consultant, faculty, and post-doctoral) are not typically allowed.
- For UMass Lowell faculty only: Because this research funding is an internal source for any UMass Lowell recipient, there has been no requirement to include the UMass Lowell RA Tuition Contribution of \$8,000 throughout the history of this grant program. Therefore, this amount does not need to be incorporated into your budget estimate.

Responsibilities of Researcher

Researchers selected to receive this funding award are responsible for the following:

- Attendance at a kick-off meeting, to be held: 1) in person at or near the research facilities of the funding recipient or the industry partner or 2) remotely via video conference call, preferably during early September 2023;
- Attendance of the "Beyond the SDS" in person or virtual training class for faculty, graduate students, and undergraduate students on the proposed research team². TURI prefers that research teams receive this training no later than the end of the Fall 2023 semester;
- If the solution you are considering contains nanomaterials, additional laboratory safety training will be required, along with a commitment to adhere to the *General Safe Practices for Working with Engineered Nanomaterials in Research Laboratories* which can be accessed at: <http://www.cdc.gov/niosh/docs/2012-147/pdfs/2012-147.pdf>;

¹ Student stipends are paid according to UMass "TA/RA/GA Payscale" for the current academic year available at: <https://www.uml.edu/HR/Payroll-Services/ta-ra-ga-payscale.aspx>

² People who have already attended this training are not required to attend a second time, though all are invited to join the training.

- Participation in weekly project status in-person meetings or conference calls with TURI staff. These status meetings may include the industry partner when appropriate;
- PI will review and approve all student time submittals for RA contract, graduate student work during non-academic periods, and undergraduate hourly contract;
- Presentation of one research project update, to be conducted in Lowell or via webinar for TURI staff and other invited guests (target timeframe: April - May 2024). This is expected to consist of a 30-minute presentation (typically conducted by the students) followed by approximately 15 minutes of questions and answers; and
- A project summary and draft journal article, due June 30, 2024, that includes a description of the research objectives, research plan, discussion of results, description of the chemical hazard review associated with the chemicals/materials studied, and suggestions for future research. TURI and the PI will work together to determine the appropriate target journal for the article. Preference will be given to journals that provide open access for free or for a nominal fee. In the event that intellectual property is developed as part of the research, the journal article must provide as much detail about the research methods and results as possible without directly impacting intellectual property rights. If the paper is not accepted by the journal, then it will be made available to the public via TURI's website.

Specific Requirements for Research with Industry Partners

In order to maintain confidentiality for both researchers and their industry partners, a non-disclosure agreement (NDA) will be executed by the University of Massachusetts and the industry partner to cover information exchanged during the research process, and a material transfer agreement (MTA) will be executed by University of Massachusetts and the industry partner to cover any materials exchanged during the research process. Management of intellectual property developed as a result of the research shall be through the University of Massachusetts Lowell Office of Technology Commercialization (OTC) (<https://www.uml.edu/research/otc/>), or its equivalent at other University of Massachusetts campuses. If the UMass Lowell OTC relinquishes the intellectual property, then the industry partner will then have the option to control the intellectual property.

Industry partners are encouraged to support/fund continued research in subsequent years. Any such sponsorship would be under a separate agreement. The intent is to have ongoing good faith cooperation between the University of Massachusetts and the industry partner during the research process.

Proposal Instructions

Proposals should not exceed four pages in length (not including Curriculum Vitae and industry letter of support) and should include the following information:

- Project title, toxic chemical to be replaced; target application of the toxic chemical to be replaced (e.g., degreasing, electroplating, coating, etc.);
- Principal Investigator(s), including university affiliation and department, and Curriculum Vitae;
- Graduate student(s) to be supported in conducting this research, and their Curriculum Vitae. The proposal should indicate the role of the graduate students within the proposed research, and emphasize the relevant learning aspects of the research;

- An industry partner is preferred, but not required for funding. If an industry partner is identified, then include a letters of support describing their anticipated role and contribution. Industry partner support is typically in-kind and relates directly to the research project. Examples of industry partner support include providing expert feedback on the research plan and results, providing material samples, identifying pertinent performance requirements, and providing access to production and/or testing equipment;
- Project description, including:
 - The research objectives to be accomplished within the funding period (one or two years). Include an indication of where the research is along the development path (from basic research to commercialization) and anticipated next steps after the initial period of funding. Also, what are the potential impacts to Massachusetts companies and the general public if the research objectives are met.
 - Research plan that describes the research activities that will be accomplished to achieve the research objectives, including a detailed description of any chemicals or materials that will be used.
 - Information comparing the relevant characteristics of the chemicals being considered in the research. The alternative chemical proposed is expected to be safer than the target chemical it would replace. The successful proposal should include relevant environmental, health, and safety concerns for all chemicals that will be used in the research and reference the source of those data. A table similar to the following example could be used within the proposal to summarize chemical information. Please note that TURI staff are available for assistance in completing a table like the following example.

Chemical	CAS #	Key Environmental, Health, and Safety Concerns (e.g., carcinogen, flammability, aquatic toxicity, corrosive, neurotoxin, etc.)	Approximate Cost per Unit
Toxic chemical being replaced			
Chemical(s) to be used in research			

- If studying the use of a chemical or material for which there is little or no environmental, health, and safety data (such as for nanomaterials), thoughtful justification should be presented for why this alternative is to be considered safer than the target chemical or process it would replace. This shall include a discussion of the limitations and uncertainties associated with data. Past proposals have included plans to address chemical data gaps by including some toxicity screening testing or including the identification and evaluation of appropriate chemical analogs; and
- Relevance of research to improve the safety of Massachusetts workers and the general public;
- Description of any directly related research for which the PI has, is, or anticipates receiving funding, including the level and duration of funding; and

Proposal Review Process and Schedule

Please submit proposals via email **no later than June 30, 2023**. You should submit your proposal in either Word doc or Adobe pdf format, to Gregory_Morose@uml.edu.

You are encouraged to contact Greg Morose, Research Manager (phone: 978-934-2954 or email: Gregory_Morose@uml.edu) to discuss your research project ideas. Proposals will be evaluated by a review panel.

Researchers may be requested to provide clarification and/or to modify their proposals based on the feedback of the review panel. **Researchers will be contacted no later than August 4, 2023** with TURI's final funding decision.

Funding will cover the period from September 1, 2023 through June 30, 2024.

About the Massachusetts Toxics Use Reduction Institute

TURI's mission is to develop and facilitate the adoption of safer solutions to the use of toxic chemicals. TURI is funded by the Massachusetts Toxics Use Reduction Act (TURA) Program and is hosted by the University of Massachusetts Lowell.