

Madeline Szoo Awarded Aspire2STEAM Scholarship

Aspiring Chemical Engineer and Biochemist Applies Passion for Feminism and Social Justice to Health Equity and Food Allergy Advocacy

DES MOINES, IOWA, UNITED STATES, November 9, 2023 /EINPresswire.com/ -- Aspire2STEAM.org, which provides educational scholarships and mentoring to young women and girls who are working toward careers that require education in science, tech, engineering, the arts, or math (STEAM), has awarded Madeline (Maddie) Szoo an ASPIRER scholarship.



Madeline Szoo, Aspire2STEAM Scholarship Recipient

Maddie is a fourth-year Chemical Engineering and Biochemistry honors student at Northeastern University in Boston, Massachusetts, and is working towards a minor in Women's, Gender, and Sexuality Studies as well. Her research interests include hematology, oncology, and drug delivery, as she explores the intersection of medicine and engineering.

“

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Maddie Szoo

“Maddie has a clear and laser-like vision for how she will positively influence our world by taking her passion for feminism and social justice and applying it to medicine in the context of health equity and food allergy advocacy,” said Cheryl O’Donoghue, CEO at Aspire2STEAM.org. “Through hard work, Maddie has earned extraordinary academic success, which is only eclipsed by her empathy

for women’s health issues, as well as those faced with life-threatening diseases.”

In Fall 2020, Maddie’s grandmother was diagnosed with breast cancer. Quickly, her family became immersed in a world of chemotherapy side effects and dosages, surgical recommendations, and radiation therapies, all while navigating the pandemic with an

immunocompromised family member. “What began as an abundance of personal research for my own understanding, quickly developed into a passion for oncology and cancer research,” said Maddie.

While attending her first year of college remotely, Maddie decided to join the Sigma Xi Research Immerse program—an undergraduate club dedicated to mentoring students in the creation of a scientific literature review and poster presentation. For her topic she chose to focus on triple-negative breast cancer (her grandmother’s diagnosis) and its treatment by measles oncolytic virotherapy, which she presented at the Northeastern University Research, Innovation, Scholarship, and Entrepreneurial Expo. Through this experience, she connected with the Auguste Lab within the Chemical Engineering department on campus, which specializes in the treatment of triple-negative breast cancer through liposomal drug-delivery systems.

Other highlights along Maddie’s research journey include a year of full- and part-time work at Beam Therapeutics studying stem cell differentiation protocols to be used for disease modeling and drug development for the treatment of sickle-cell anemia. This past summer, Maddie supported research in the Koppes Lab within the Chemical Engineering department on campus, optimizing a microphysiological system (organ-on-chip) for disease modeling of sympathetic and parasympathetic neuron and venous endothelial and arterial smooth muscle cell co-culturing to better understand the causes of vascular graft integration failure in bypass surgeries. Currently, she is working at the Wellman Center for Photomedicine in the Hasan Lab at Massachusetts General Hospital, a teaching laboratory for the Harvard Medical School and educational and training affiliate of the Health Sciences and Technology program at MIT. Maddie is researching patient-derived organotypic tumor spheroids to optimize disease models for future use in evaluating the effectiveness of photodynamic therapy for the treatment of pancreatic ductal adenocarcinoma.

In addition to research, Maddie is equally passionate about mentorship and inclusivity in STEAM. Having attended public school in Texas, she frequently encountered prejudice from her peers as one of the few young women in the classes that most excited her—upper-level math and science courses. “I was able to persevere through these negative experiences with encouragement from my mom, my female cousins, my aunt, and my grandmother, each of whom overcame adversity



Maddie received the honor of being inducted into Northeastern University’s Huntington 100, which honors 100 distinguished students each year who embody the mission, ideals, and values of Northeastern.

within their own fields," said Maddie.

To help pave the way for other young women in STEAM, Maddie is an active participant in Northeastern's chapter of the Society of Women Engineers and provided mentorship as a Connections Chemistry tutor—a program funded by the National Science Foundation to address the importance of success in introductory math and science courses for first-year female engineering students. "My experiences as a woman in STEAM (both positive and negative) have inspired a passion for mentorship and scholarship, which I now cultivate through survey-based research on diversity, equity, and inclusion in undergraduate engineering programs to improve the enrollment, retention, and graduation rate for female and underrepresented engineering students," said Maddie.



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Another area that has influenced her passion for STEAM and motivated a deeper understanding of science has been Maddie's personal experience with food allergies. Maddie has had to cope with seven life-threatening food allergies her entire life. She knows, first hand, the terror of a severe reaction, the anxiety associated with the seeming randomness of the attack, and the calm reassurance from a compassionate healthcare provider. Through her experiences with food allergies and her role as a volunteer with Food Allergy Research and Education (FARE), she has learned to advocate for herself and others. Said Maddie, "I work diligently to create a safe and inclusive environment as a tutor, a mentor, a classmate, and an employee on a daily basis by reducing the presence of allergens in these spaces so that those who struggle with food allergy anxiety feel welcomed."

About Aspire2STEAM

Help us fund scholarships for students like Maddie! [Donate now.](#)

Established in 2018, Aspire2STEAM.org is a 501(c)(3) nonprofit, which has earned Guidestar's Gold Seal for integrity, transparency, and accountability. Aspire2STEAM provides scholarships and mentoring to young women and girls who are working hard— aspiring—to achieve careers that require education in science, tech, engineering, the arts, or math. Aspire2STEAM is committed to helping women and girls with a hand up over the incredible barriers of student

debt and rising education costs, and the real, ever-present opportunity barriers that keep them out of most male-dominated industries.

Share this scholarship [online application](#) today.

Cheryl O'Donoghue

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