

# Natalie Barney

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## WORK EXPERIENCE

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### Folia Materials

May 2024 - Dec. 2024

*Summer and Fall Intern*

*Bedford, MA*

Folia Materials is an IP materials company specializing in nano-metal functionalized paper via patented processes.

- Designed and prototyped microwave-safe packaging using CAD and CriCut tools.
- Conducted sensory analysis surveys focused around how microwave packaging influences food quality.
- Researched food ingredient behavior during microwave cooking to inform packaging design decisions.

### Triton Systems Inc.

May 2023 – Aug. 2023

*Summer Intern*

*Chelmsford, MA*

Triton Systems is a conductor of research and development for the U.S. Department of Defense.

- Performed multistep wet organic chemical synthesis and worked on scaling up chemical reactions.
- Collected and analyzed NMRs, TGAs, and rheology and torque data.
- Participated in technical, oral presentations to internal project management team members.

## EDUCATION

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### University of Massachusetts-Amherst

Dec. 2025

*Bachelor of Science, Food Science*

*Amherst, MA*

- **GPA: 3.93/4.0**; Food Science Honors Society (Phi Sigma Tau); Dean's List (all semesters)

#### Relevant Coursework

- Food Analysis & Lab: Proximate analysis, rheology, microscopy, sensory evaluation, beer and allergen testing.
- Food Chemistry & Science of Food: Food preservation, toxicology, and U.S. food regulations (FDA/USDA).
- Food Processing & Engineering: Product development, unit operations (e.g., extrusion, dehydration, heat transfer), and shelf-life prediction.
- Materials & Manufacturing Labs: Metals, polymers, ceramics, additive manufacturing, and fabrication processes.
- Junior Year Writing (Food Science Dept.): Scientific writing, lit-reviews, peer feedback, and oral presentations.

#### Project Experience

- Capstone Project - "Date Night" Ice Cream: Developed and scaled a new flavor for Herrerl's Ice Cream, from pilot plant production to a consumer-ready product.
- Product Development - "Frozen Flights": Created a flight of alcohol-inspired, non-alcoholic ice creams with innovative flavor profiles and a sensory focus.
- Research Paper - "A Brief Analysis of Titanium 64": Assessed the thermodynamic properties of Ti-6Al-4V for aerospace applications.
- Literature Review - "Detection of Nanoplastics & Microplastics": Reviewed and compared current identification techniques for nanoplastics and microplastics in food and environmental contexts.

#### Leadership & Involvement

- Upper Class Leader-Hypatia Living Learning Community, Alumni Sister-Alpha Omega Epsilon Rho Chapter (STEM Sorority), Food Science Club Member

## SKILLS & INTERESTS

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- **Technologies:** Absorption Spectroscopy, GC-IR, NMR, TGA, DSC, Brabender, RotaVap, Sonification, Excel, PowerPoint, ARKA TA, MATLAB, Python, HTML, Creo, SolidWorks, AutoCAD, 3D Printing
- **Skills:** Sensory Evaluation, Pilot Plant Production, Dehydration, Food Safety Testing, Product Development, Data Analysis, Scientific Writing, Literature Review, Oral Presentation, Project Management
- **Interests:** Running/fitness; Painting; Stardew Valley; Gardening; Baking; *Taskmaster*; *Star Wars*; *Andor*