

Seeking a highly motivated graduate student (MS or PhD) to join an NSF-funded collaborative project examining the organic biogeochemistry of surfactants at the air-sea interface. The student will be advised by Dr. Andrew Wozniak at the University of Delaware's, School of Marine Science and Policy in Lewes, DE with an expected start date of Fall 2021 or Winter 2022. Tuition and a competitive student stipend will be offered for the 3-year duration of the project.

Surfactant organic matter accumulates at the air-sea interface, in the surface microlayer, influencing both the chemistry of materials available for exchange and the physical environment (e.g., surface tension, turbulence) for gas and particle transfers between air and sea. The project seeks to develop a mechanistic understanding of the links between biological and photochemical processes and the resulting surfactant and surface microlayer chemical and physical characteristics. Such an improved understanding will represent a first step toward improved models of the air-sea exchange of climate relevant gases and aerosols. The project is a collaboration with Dr. Amanda Frossard's group at the University of Georgia. Two research cruises to sample surface microlayer and subsurface waters from estuarine, coastal ocean, and open ocean sites will provide the student with valuable oceanographic field experience. The student will be trained and actively involved in a subset of seawater organic matter molecular (colorimetry and UV-vis spectroscopy; Fourier transform ion cyclotron resonance mass spectrometry; high resolution liquid chromatograph mass spectrometry), biological (next-generation DNA sequencing), and physical (dynamic and equilibrium surface tension) characterization, and multivariate statistical techniques.

Applicants holding bachelor's or master's degrees in chemistry, geosciences, environmental science, marine science, or related fields are desired. Applicants having experience with chemistry coursework, dissolved organic matter characterization (including spectroscopic and mass spectrometric techniques listed above), or DNA sequencing techniques are desired though all motivated individuals are encouraged to apply. Individuals from all backgrounds will be considered; those from groups underrepresented in STEM fields are especially encouraged to apply.

Interested students should email Dr. Andrew Wozniak (awozniak@udel.edu) with a CV and a brief statement of research experience and interests. Review of applicants will begin immediately and extend until an appropriate candidate is identified.