DOANE COLLEGE

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Center for Undergraduate Research on Biofilms

CURB

Supported by the National Institute of Health

Faculty and students at Doane College have received a major grant from the National Institutes of Health to conduct research with undergraduates on biofilms. Biofilm bacteria are considered some of the worst infections that can cause disease in humans. Biofilm infections are highly relevant to the biomedical community because they are dangerous and difficult to treat with antibiotics. Therefore the faculty at Doane works together in a multidisciplinary, multi-institutional setting to approach the biofilm problem form various angles. Professors and students from biology, chemistry, and physics are getting hands on experience with modern research techniques involving biofilms.

Andrea Holmes, Ph.D., Principal Investigator
Professor of Chemistry

Dr. Holmes is an organic chemist. She works on the creation of novel polymeric surfaces to inhibit the growth of biofilms. She has also developed novel molecular sensors chemical microarrays that can be used to detect quorum sensing molecules that are responsible for biofilm formation.

Chris Wentworth, Ph.D., Co-Investigator
Professor of Physics and Engineering

Dr. Wentworth is a computational physicist. He is developing dynamical systems models and computer simulations of biofilm growth. He is also interested in designing and building bioreactors for microbial growth kinetics studies.

Chris Huber, Ph.D.; Co-investigator
Assistant Professor of Chemistry

Dr. Huber is an analytical chemist and interested in the binding mechanism used by *Pseudomonas Aeruginosa* bacteria on silica and polystyrene surfaces. In order to accomplish this overall goal, the Huber lab uses Surface Enhanced Raman Spectroscopy (SERS) to probe the chemical groups used during attachment of PA01 bacteria on silica-like and polystyrene-like surfaces.

Arin Sutlief, Ph.D.; Post-doctoral Fellow

Dr. Sutlief is a bioanalytical chemist, and her research involves the study of biofilms using a Bioflux, which is high throughput microfluidic device that is coupled with fluorescence microscopy. The BioFlux automates live cell analysis for shear assays and long-term cell culture under physiologically relevant conditions showing and cell-cell interactions and biofilm growth over time.