Biofilms are biological films that develop and persist at interfaces in aqueous environments. These biological films are composed of cells immobilized at a surface that may be embedded in an organic polymer matrix of microbial origin.

Biofilm cells differ from their planktonic counterparts in the genes and proteins they express, resulting in distinct phenotypes that include altered resistance to biocides, antibiotics and the human immune system. Bacterial biofilms have been implicated in more than 80 percent of chronic inflammatory and infectious diseases, including ear infections, native valve endocarditis, urinary tract infections, burn and non-healing wounds and infections of indwelling medical devices. Biofilms are also the principal cause of biofouling, a persistent problem in marine and industrial environments. Biofouling affects food processing, water purification and distribution, the pharmaceutical and petroleum industries, as well as essentially all other industries having materials exposed to water.

PARTNERS
Opportunities exist for collaborative and interdisciplinary research. The group can act as a critical research component to link university research to innovation and problem solving with industrial partners.

TRAINING
The Biofilm Research Group provides opportunities for short-term and long-term training in biofilm research and testing methods for visiting researchers and technical staff, allowing for the transfer of the latest methods and approaches for testing and performing research with biofilms.

TESTING AND DEVELOPMENT
The Biofilm Research Group performs tests on the effects of novel compounds and treatments for biofilm control, biofilm removal and biofilm prevention. These include antimicrobial testing, microbial attachment, biofilm development and biofilm dispersion assays. In the past, the group has been involved in developing improved methods for biofilm removal from medical and industrial surfaces.

CONSULTING
The Biofilm Research Group provides consulting services to companies and research laboratories for the development of novel strategies for the treatment and control of biofilms in industrial, medical and household settings. The team has worked with several Fortune 500 companies.

For more information visit:
go.binghamton.edu/biofilms