CONNECTIONG WITH THE WORLD
A seminar series hosted by the Opus College of Engineering

PATHOGENS AS POLLUTANTS: ADVANCING QUANTITATIVE MICROBIAL RISK ASSESSMENT

WEDNESDAY, OCTOBER 8

Dr. Charles N. Haas
L.D. Bets Professor of Environmental Engineering and Head of Civil, Architectural and Environmental Engineering, Drexel University, Philadelphia, PA

12:00 - 12:50 p.m.
Engineering Hall (new engineering building) room 236
1637 W. Wisconsin Avenue Milwaukee, WI 53233

We live in a microbial world; indeed by recent estimates the human body contains more microbial cells than human cells. Some of these microorganisms are pathogenic. Over the past 25+ years, a basis of knowledge to estimate the relationship between exposure to microorganisms and the likelihood of infection and disease has been developed by my research group and collaborators. At a gross level, there is a simple stochastic model that can be developed. However as we incorporate finer grained details of host anatomy, physiology and immunology, and finer grained details of pathogen dynamics, it may be possible to develop predictive models to assess the risk from a newly emerged pathogen. In this talk, I will go over the historical development of QMRA (quantitative microbial risk assessment), talk about recent work in our lab on dynamic models, and discuss where the field might benefit from coupling with information from other fields of study including epidemiology (such as study of outbreaks, for example the 1993 Milwaukee Cryptosporidium outbreak), molecular biology, fluid dynamics, and immunology.

One professional development hour (PDH) will be recorded and an email documenting attendance will be sent to attendees to use towards their Wisconsin Professional Engineer’s license.