



# Electrical & Computer Engineering

## FLORIDA INTERNATIONAL UNIVERSITY

### Invited Speaker Series



**Dr. David Cunningham**

Eastern Kentucky University - Department of Chemistry & Forensic Science Program

### ***Recent Advances in the Commercialization of Biosensors***

Friday, September 1 | 10 am - 12 pm

Florida International University | Engineering Center 2300

### **Abstract**

Various physical and chemical biosensors are commercially available and many additional medical devices are under active development. Financial announcements from small companies, licensing agreements and patent mapping are useful in estimating progress of new technologies towards the market. Categories of existing products include blood glucose meters, point-of-care devices with more extensive assay menus and emerging wearable and implanted devices. Historical background and leading examples of each type of device will be described to indicate the rate of progress in the field and the state-of-the-art in medical sensing capabilities. These biosensors generally include either an optical or electrochemical transducer element along with analyte specific biochemical material needed for selective sensing. An overview of various analyte recognition modalities will be presented including both analytical reagent addition and reagent-free formats. Finally, consideration to the type of sample (blood, sweat and tears) and opportunities for continuous measurements will be addressed.

### **Bio**

David D. Cunningham received his B.S. in Chemistry from Iowa State and his Ph.D. in Analytical Chemistry from the University of Cincinnati. During a 24-year career in industry, he rose to Volwiler Associate Research Fellow at Abbott Laboratories. His discovery of the enhanced amount of blood obtained from lancet wounds using vacuum and skin stretching led to development of the Sof-Tact™ blood glucose meter. Other contributions include bringing 10 hospital products to market, including the world's leading anesthesia gas, Sevoflurane, used in 95% of all major surgeries. And, he led a process engineering group responsible for yearly production of \$1 billion dollars of immunoassay reagents. Since 2011, he has been an Assistant Professor of Chemistry at Eastern Kentucky University supporting a FEPAC accredited forensic science program