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Discover the Biosensors and Biomaterials Certificate

Study in a unique online environment and apply your engineering skills to improving quality of life with a University of Washington Biosensors and Biomaterials Certificate.

Transform Your Engineering Career

Biomedical diagnostic technology must be inexpensive, chemically versatile, and accurate to be successful as a commercial product. Biomaterials are used to augment or even replace body parts so knowledge of how a human body will react to engineered materials is crucial for product success. Medical engineers are the professionals with knowledge about biosensors and biomaterials that do the research to develop and evaluate systems and products such as artificial organs, prosthesis, instrumentation, medical information systems, and health management and care delivery systems. A University of Washington Biosensors and Biomaterials certificate can transform your career in engineering to a new career in the medical engineering field as you learn about:

- Basic concepts in organic, inorganic and physical chemistry and why they are important for biosensor development
- Biosensors in use and in development and how they're used
- Biomaterials widely used in medical devices and in biotechnology

The program is taught by UW Bioengineering and Chemical Engineering faculty with guidance from recognized professionals in the biomedical field.

Earn a Master's Degree in Medical Engineering

The Biosensors and Biomaterials certificate is one of four programs that can be combined to earn Master of Medical Engineering degree. This program integrates your knowledge of engineering with basic medicine and applications in biomaterials, biosensors, medical imaging, diagnostic methods, and physiological assessment.

Instructor Spotlight

Buddy D. Ratner, Ph.D.

Dr. Ratner is the director of the UW Engineered Biomaterials (UWEB) program. Dr. Ratner was recently cited by the American Association for the Advancement of Science for his pioneering research and administrative leadership in the field of biomedical engineering, particularly in biomaterials and surface analysis.

Paul Yager, Ph.D.

Dr. Yager's research interests include microfluidic devices for chemical and biochemical measurement and development of point-of-care diagnostic instruments. Recently, Dr. Yager was awarded a five-year, \$15.4 million Grand Challenges grant which will be used to establish new standards of healthcare technology use in countries around the world.

Biosensors and Biomaterials Courses

This unique educational experience combines the best of online coursework and onsite or online discussion groups—the perfect format for busy professionals. The following courses are required to earn the Biosensors and Biomaterials certificate:

Medical Chemistry

Review the basic concepts in inorganic and physical chemistry. Includes topics such as organic chemistry, biochemistry, polymer chemistry, pharmaceutical chemistry and chemical kinetics.

Biosensors

Review the biosensors in use and under development, and their application in vivo and in vitro monitoring of humans. The course focuses on the interaction between the analyte in its native environment, the biochemical systems employed to measure the analyte, and the physical transducers used to convert this information into electrical signals. Extensive use is made of primary literature, and students are expected to become comfortable with reading and analyzing research papers.

Biomaterials and Biocompatibility

Learn about the materials science and the biology basics needed to appreciate the use of materials in medicine and biology. Subjects addressed include an overview of applications, biocompatibility, biomaterials types and properties, biomolecular materials, protein adsorption, cells on biomaterials, diagnostics, smart materials, drug release, tissue engineering, biomechanics of medical devices, blood compatibility and biosurfaces.

About UW Extension


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Interested in a certificate? You can ask questions and meet instructors and former students at these free meetings. For meeting dates, times and locations, please go to our Web site.

Questions? Ask away

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