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Earn a Basic Medical Sciences Certificate

Enter the demanding world of medical engineering when you transform your engineering career into a biomedical specialty with a Basic Medical Sciences Certificate.

Demand for Medical Engineers Is Growing

Medical device, pharmaceutical and biotech companies continue to innovate to improve health care, and the demand for medical engineers is growing as a result. Although the design and development of these products involves many scientific principles engineers already know, an education in the biological and medical sciences opens doors to those who want to work in the medical industry.

A University of Washington Basic Medical Sciences certificate can be your first step towards a career in the medical technology field. During your coursework, you'll benefit from:

- An introduction to the biological sciences that are the basis of medicine, healthcare, and medical device development
- A combination of seminars and hands-on lab work
- Knowledge through case studies that illustrate the important concepts
- Preparation for the effective application of engineering to medical applications

The program is taught by faculty from the UW Department of Bioengineering, the UW School of Medicine, and recognized professionals in the biomedical field.

Earn a Certificate or Master's Degree in Medical Engineering

The Basic Medical Sciences certificate is one of four programs that can be combined to earn a 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.

Fast Facts

- Medical engineers develop devices and procedures that solve medical and health-related problems by combining their knowledge of biology and medicine with engineering principles and practices
- PricewaterhouseCoopers tracked 37 biotech and medical device company investments made in the Seattle-Bellevue-Everett area. Nineteen were biotechnology investments and 18 were to medical device and equipment companies.

Basic Medical Sciences Courses

Learn the basic fundamentals of medical sciences as you earn your certificate. The following seminars and laboratories are required:

Cell Biology Seminar and Laboratory

Introduces fundamental molecular processes that occur in living organisms, emphasizing the structure and organization of prokaryotic and eukaryotic cells, DNA replication, gene expression and regulation, protein biochemistry, signal transduction, and the extracellular matrix. The laboratory section introduces basic microbiological and molecular biological techniques.

Physiology Seminar and Laboratory

This course familiarizes the medical engineering student with state-of-the-art methods of physiological measurement, providing a basis for designing advanced diagnostic techniques and therapeutic devices. Students perform physiological measurements, including echocardiography, neurological monitoring, and metabolic assessments.

Special Problems in Anatomy and Surgical Anatomy Laboratory

This course trains you in the methods of anatomic study, so you can explore the specific anatomic details required for the development of medical devices. Laboratory sessions include extensive guided dissections and reports of findings. Explore first-hand the mechanical properties of human tissues, methods of surgical access, and functional configurations of organs and tissues.

About UW Extension

Learning through UW Extension gives working professionals the quality education that will take your career to the next level, whether you long for a promotion or a shift to a completely new field. All UW Extension programs are designed by UW faculty, industry experts and community leaders. To ensure you receive first-rate instruction, every UW Extension program must be approved by the corresponding University of Washington academic department. UW advisory boards are continually reviewing programs and updating the curriculum to meet the evolving demands of specific fields.


The University of Washington is one of the oldest state-supported institutions of higher education on the West Coast, and one of the preeminent research universities in the world. With nationally ranked academic excellence, facilities, and a diverse student and faculty population, the UW is a leading-edge university with global influence.

About UW Certificate Programs

You already work hard at your existing job, and going back to school is a serious commitment. That's why UW certificate programs are designed around you, with flexible schedules and a choice of part-time, full-time or even online study, depending on the program. A UW certificate gives you the knowledge and credibility to open doors for the rest of your professional life, whether you're moving up the career ladder or switching careers altogether.

Learn more about the program

For complete details, visit the Web site:

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Attend an information meeting.

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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