The 2007 Intensive Short Course

February 5-7, 2007

The Biomaterials Intensive Short Course
An Introduction to Biomaterials and Medical Device Applications

University of Washington Engineered Biomaterials (UWEB)
University of Washington, Seattle, Washington

February 5-7, 2007

Dental Implants
Blood Compatibility
Tissue Engineering
Surface Analysis
Cell Interactions
Protein Engineering
Biomaterials for Healing Skin
Cardiovascular Devices
Bone and Hard Tissue
Proteins at Interfaces
Ophthalmologic Materials
Liability Issues with Medical Devices
Biomaterials for Gene Delivery
Cell and Protein Patterning
Surface Molecular Engineering
Device Centered Infection & Biofilms
Blood Interactions with Materials
Toxicology and Biocompatibility
Inflammation and the Foreign Body Reaction
Tissue Interactions and Introduction to Histology
What is the Short Course?  
The UW Industry Short Course introduces the fundamental principles and applications of biomaterials and medical devices. Our speakers are experts in the field of biomaterials. They address the following topics:

- Major issues in the use of biomaterials in medicine
- Tools used to evaluate biomaterials in medicine
- Biomedical devices

Why is the Short Course for you?  
The 100 billion-dollar medical device industry relies on materials for their devices. Yet, in materials in a complete biological system like the human body are complicated. Biomaterials research and development involve chemistry, physics, materials science, mechanical and chemical engineering, biology, biochemistry, medicine, biotechnology and bioethics. This course will introduce you to the principles behind the application of materials in medicine and also raise concerns and problems that biomaterials practitioners confront. Academics and professionals new or veteran to the biomaterials field will find topics suited to their interests.  

[www.engr.washington.edu/epp/uweb](http://www.engr.washington.edu/epp/uweb)

What UWEB Short Course alumni are saying...  

- Excellent and highly informative.  

  - Worthwhile.  

  - The intensive short course has been one of my best investments of three days.

What you'll get from the Short Course  

- Incisive tutorials by leaders in biomaterials research and development
- Access to curriculum-oriented course materials on the Web
- A fair appreciation of the key issues, controversies, and trends in biomaterials, all in three days
- Broad subject coverage of soft and hard materials, biology, medicine, engineering
- A copy of *Biomaterials Science: An Introduction to Materials in Medicine, 2nd ed.*

[The UWWEB Biomaterials Intensive Short Course](http://www.engr.washington.edu/epp/uweb)  

**Workshop Faculty**

**Buddy D. Ratner** is Director of the University of Washington Biomedical Engineering Research Center (UWEB ERC). He is also the Michael L. and Myrna Darland Endowed Chair in technology Commercialization and a UW Professor in the Departments of Bioengineering and Chemical Engineering. He received his PhD (33v,2) in Polymer Chemistry from the Polytechnic Institute of Brooklyn. He established the NIH-funded NESC/BIO in 1984, now directed by David Castron. His research interests include biomaterials, surface analysis of organic materials, self assembly, and RF-plasma thin film deposition.

**Andy Brame** is Director of Industry Relations at the University of Washington Engineered biomaterials. He is also the Project Director for the Coulter Foundation Research Partnership and a UW Acting Instructor in the Department of Bioengineering. He worked for many years in the biotechnology/entrepreneurial settings as a Primary Inventor, in HU Program Management, Clinical Program Management, Business Development, Licensing and Partnerships and Acquisitions. He received his Ph.D. and M.S. in Biochemistry from the University of New Hampshire.

**Christopher Allan** is a UW Associate Professor, Section of Hand and Microsurgery, Department of Orthopaedics at the UW Medical School. He received his MD (1992) from the Northwestern University Medical School, intern at Northwestern University Medical School until 1993 and a resident in Orthopaedic Surgery at the University of Chicago Hospitals until 1997. Dr. Allan's research interests include wound repair and regeneration, tissue engineering, and the application of these fields to extremity injuries.

**Karl Böhringer** is a UW Associate Professor in the Department of Electrical Engineering and a UW Adjunct Professor in the Departments of Computer Science & Engineering and in Mechanical Engineering. He received both his MS and PhD degrees in Computer Science from Cornell University and his Diplom-Informatiker degree from the University of Karlsruhe, Germany. His current interests include microfluidics and microscale, as well as biomedical implants and bioMEMs for single-cell genomics and proteomics.

**Paul Börnstein** is a UW Professor of Biochemistry and Medicine. He received his MD from New York University, followed by a residency in Internal Medicine at Yale and postdoctoral fellowships at the Pasteur Institute and NIH. His research interests include macromolecular proteins, matrix interactions, and the cellular and molecular biology of the extracellular matrix.

**James D. Bryers** is a UW Professor in the Department of Bioengineering and Adjunct Professor in the Department of Chemical Engineering. He received his PhD in Chemical Engineering from Rice University. His research interests include bacterial adhesion, biofilms, and immobilized cell bioreactors.

**David G. Castron** is Director of the NIH-funded National ESCA (Electron Spectroscopy for Chemical Analysis) and Surface Analysis Center for Biomedical Problems (NESC/BIO) and an UW Research Professor in the Departments of Bioengineering and Chemical Engineering. He received his PhD in Chemistry from the University of California, Berkeley. His current research interests are focused on the development and application of surface analysis techniques (ESCA, static SIMS, AJ, NEXAFS) for the characterization of polymeric biomaterials, organic thin films, and catalytic materials.

**Cecilia M. Giachelli** is Deputy Director of UWEB and a UW Professor in the Department of Bioengineering. She received her PhD (1987) in Pharmacology from the UW. Her research areas are tissue engineering, calcification, cellular material interactions, foreign body response and ectopic calcification.

**Kip Hauch** is a UW Scientific Coordinator for BEAT (Bacterial Endothelial and Allogeneic Tissue), a NIH-funded Bioengineering Research Partnership focused on the tissue engineering of heart muscle. He received his BS in Chemical Engineering from the University of Minnesota and his PhD from the University of Washington. He also manages the UWEB Optical Microscopy and Image Analysis Center. His research projects include: cardiac and cardiovascular tissue engineering, percutaneous wound healing, surface modification and molecular interaction studies, and micro- and monocellular interactions, and signal transduction.

**Allan S. Hoffman** is a UW Professor in the Department of bioengineering and Adjunct Professor in the Department of Chemical Engineering. He received his ScD (1957) in Chemical Engineering from MIT. His research interests include smart polymer bioconjugates, hydrogels, drug delivery, and polymer surfaces.

**Thomas A. Horbett** is a UW Professor in the Departments of Bioengineering and Chemical Engineering. He received his PhD (1970) in Biomedical Engineering. His research interests include the interaction of cells and proteins with foreign materials, anti-thrombotic peptide, and antibiotic delivery.

**John E. Olerud** is a UW Professor and Divisional Head of the Department of Medicine/Dermatology and Adjunct Professor in the Department of Orthopaedics, Sports Medicine. He received his MD (1971) from the UW School of Medicine followed by residencies in Internal Medicine (1975) and Dermatology (1977) at the UW. His research includes abnormal wound healing in patients with diabetes mellitus and cutaneous T-cell lymphoma. His clinical practice is in cutaneous lymphoma, skin manifestations of diabetes and internal diseases, leg ulcers, and connective tissue diseases.

**Robert O'Neal** is a UW Associate Professor in the Department of Periodontics, School of Dentistry at the Associate Dean for Clinical Services. He received his DMD from the Medical College of South Carolina, College of Dental Medicine and his Periodontics training at the US Army Institute of Dental Research, Walter Reed. His research includes dental implants and their interface with bone, connective tissue and epithelium.

**Suzie Pun** is a UW Assistant Professor in the Department of Bioengineering. She received her PhD (1992) in Cell Biology from the University of Padova, Italy. Her research interests are biomaterials, wound healing, angiogenesis, and tissue engineering.

**Patrick S. Stavoy** is a UW Professor in the Department of Bioengineering. He received his PhD (1989) in Biochemistry from the University of Illinois-Champaign. His research interests include protein engineering, biomaterials, drug delivery, and biomineralization.

**Marta Scatena** is a UW Research Assistant Professor in the Department of Bioengineering. She received her PhD (2002) in Microbiology from the University of Padova, Italy. Her research interests include macromolecule transport, non-viral gene delivery, and intracellular trafficking.

**Tom Wight** is a UW Professor of Pathology and a member of the Hope Heart Program at Benaroya Research Institute at Virginia Mason. He received his MD from the University of California at San Francisco. His clinical practice is in cutaneous T-cell lymphoma. His clinical practice is in cutaneous lymphoma, skin manifestations of diabetes and internal diseases, leg ulcers, and connective tissue diseases.

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