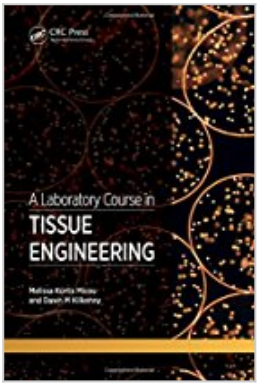

A Laboratory Course in Tissue Engineering

By Melissa Kurtis Micou, Dawn Kilkenny

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Filling the need for a lab textbook in this rapidly growing field, **A Laboratory Course in Tissue Engineering** helps students develop hands-on experience. The book contains fifteen standalone experiments based on both classic tissue-engineering approaches and recent advances in the field. Experiments encompass a set of widely applicable techniques: cell culture, microscopy, histology, immunohistochemistry, mechanical testing, soft lithography, and common biochemical assays. In addition to teaching these specific techniques, the experiments emphasize engineering analysis, mathematical modeling, and statistical experimental design.

A Solid Foundation in Tissue Engineering?and Communication Skills

Each experiment includes background information, learning objectives, an overview, safety notes, a list of materials, recipes, methods, pre- and postlab questions, and references. Emphasizing the importance for engineering students to develop strong communication skills, each experiment also contains a data analysis and reporting section that supplies a framework for succinctly documenting key results. A separate chapter provides guidelines for reporting results in the form of a technical report, journal article, extended abstract, abstract, or technical poster.

Customize Your Courses with More Than a Semester’s Worth of Experiments

The book is a convenient source of instructional material appropriate for undergraduate or graduate students with fundamental knowledge of engineering and cell biology. All of the experiments have been extensively tested to improve the likelihood of successful data collection. In addition, to minimize lab costs, the experiments make extensive use of equipment commonly found in laboratories equipped for tissue culture. A solutions manual, available with qualifying course adoption, includes answers to pre- and postlab questions, suggested equipment suppliers and product numbers, and other resources to help plan a new tissue engineering course.

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Editorial Review

Review

"The book is well organized to teach cell culture and tissue engineering experiments to novice and experienced students. There is a quantitative emphasis in the book that strengthens the 'engineering' part of tissue engineering."
?Ann Saterbak, Rice University, Houston, Texas, USA

"… an excellent handbook for graduate students and investigators who are new in tissue engineering area. … The approaches and topics selected are appropriate for not only undergraduate but also graduate students and new investigators in this area."
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?Michael J. Moore, Ph.D., Tulane University, New Orleans

"… provides comprehensive coverage of laboratory techniques in tissue engineering, including detailed experimental protocols."
?Adam Higgins, Oregon State University, Corvallis

About the Author

Melissa Kurtis Micou, Ph.D., is a lecturer in the Department of Bioengineering at the University of California, San Diego. She has taught tissue-engineering lecture and lab courses for undergraduate students for the past ten years.

Dawn M. Kilkenny, Ph.D., is an assistant professor at the Institute of Biomaterials and Biomedical Engineering (IBBME), University of Toronto, and is academic advisor to the IBBME undergraduate teaching laboratory. Her research interests include cellular signaling, fluorescent protein technology, and microscopy.

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