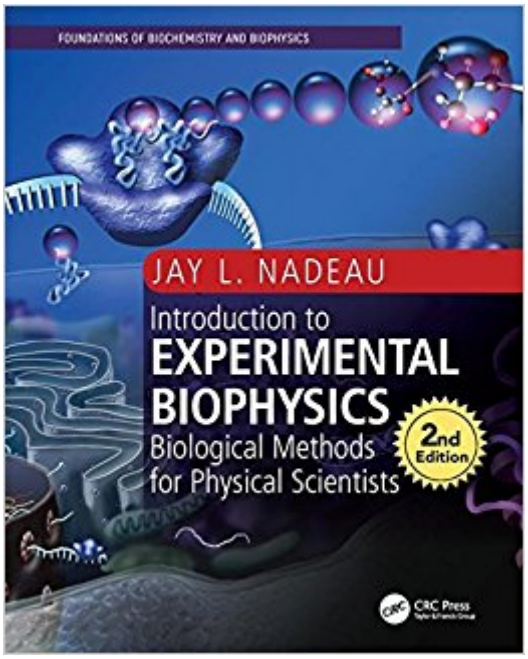
Introduction To Experimental Biophysics, Second Edition: Biological Methods For Physical Scientists (Foundations Of Biochemistry And Biophysics)



Synopsis

Praise for the First Edition Ã¢â ¬Å“essential reading for any physical scientist who is interested in performing biological research.Ã¢â ¬Â• Ã¢â ¬â ¢Contemporary Physics "an ambitious textÃ¢â ¬Â|. Each chapter contains protocols and the conceptual reasoning behind them, which is often useful to physicists performing biological experiments for the first time." Ã¢â ¬â œPhysics Today This fully updated and expanded text is the best starting point for any student or researcher in the physical sciences to gain firm grounding in the techniques employed in molecular biophysics and quantitative biology. It includes brand new chapters on gene expression techniques, advanced techniques in biological light microscopy (super-resolution, two-photon, and fluorescence lifetime imaging), holography, and gold nanoparticles used in medicine. The author shares invaluable practical tips and insiderÃ¢â ¬â„¢s knowledge to simplify potentially confusing techniques. The reader is guided through easy-to-follow examples carried out from start to finish with practical tips and insiderÃ¢â ¬â„¢s knowledge. The emphasis is on building comfort with getting hands Ã¢â ¬Ëœwet Ã¢â ¬â„¢ with basic methods, and finally understanding when and how to apply or adapt them to address different questions. Jay L. Nadeau is scientific researcher and head of the Biomedical Engineering in Advanced Applications of Quantum, Oscillatory, and Nanotechnological Systems (BEAAQONS) lab at Caltech, and was previously Associate Professor of Biomedical Engineering and Physics at McGill University.

Book Information

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Customer Reviews

"I was really very surprised how much I want to purchase this text. Our lab is engaged in research that spans multiple disciplines, from genetic engineering, biomaterials, immunotherapy, and tissue engineering. Hence the Ã¢â ¬Ëœtool boxÃ¢â ¬â„¢ that members of my group have to develop is broad but requires detail. This text by Nadeau amazingly touches on the many if not all the techniques a modern molecular biology/bioengineering researcher needs." Ã¢â ¬â ¢James D. Bryers, Professor of Bioengineering, University of Washington "This book will prove to be extremely useful and motivating for any scientist, student or newcomer interested in applying concepts, methods and techniques of the physical and chemical sciences to fundamental problems in biology and medicine. It clearly enlightens the need of combining interdisciplinary approaches to tackle the main challenges in life sciences. The main strength of this book is that it provides not only some description of basic methods and techniques, but also gives access to more advanced approaches and to more sophisticated equipment. It brings physics and chemistry to biologists and physicians, as well as biology and medicine to physicists and chemists. Ã¢â ¬â ¢Alain Arneodo, Directeur de Recherche, CNRS

Jay L. Nadeau is a research professor in the Graduate Aerospace Laboratories (GALCIT) at the California Institute of Technology. Prior to Caltech, she was associate professor of biomedical engineering and physics at McGill University (2004Ã¢â ¬â œ2015). Her research interests include nanoparticles, fluorescence imaging, and development of instrumentation for the detection of life elsewhere in the solar system. She has published over 70 papers on topics ranging from theoretical condensed matter physics to experimental neurobiology to the development of anticancer drugs and, in the process, has used almost every technique described in this book. Her work has been featured in New Scientist, Highlights in Chemical Biology, Radio CanadaÃ¢â ¬â„¢s Les AnnÃƒÂ©es LumiÃƒÂ¨re, Le Guide des Tendances, and in educational displays in schools and museums. Her research group features chemists, microbiologists, roboticists, physicists, and physician-scientists, all learning from each other and hoping to speak each otherÃ¢â ¬â„¢s language. A believer in bringing biology to physicists as well as physics to biologists, she has created two graduate-level courses: methods in molecular biology for physical scientists and mathematical cellular physiology. She has also taught pharmacology in the medical school and was one of the pioneers in the establishment of multiple mini-interviews for medical school admission. She retains an adjunct position at McGill, and has collaborators in industry and academia in the United States, Europe, Australia, and Japan. She has given several dozen invited talks at meetings of the American Chemical Society, American Geophysical Union, the International Society for Optics

and Photonics (SPIE), the Committee on Space Research, the American Association of Physics Teachers (AAPT), and many others. Before McGill, she was a member of the Jet Propulsion LaboratoryÃ¢â ¬â„¢s Center for Life Detection, and previous to that a Burroughs-Wellcome postdoctoral scholar in the laboratory of Henry A. Lester at Caltech. She received her PhD in physics from the University of Minnesota in 1996.

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