



“Physics in Canada”
Book Review

“La Physique au Canada”
Critique de livre

Introduction to Experimental Biophysics: Biological Methods for Physical Scientists, Jay Nadeau, pp:641, CRC Press 2011, ISBN:9781439829530, \$89.95 USD.

The stated intent of this book is to introduce physicists, chemists and engineers to experimental techniques commonly used in biology labs. The book is quite comprehensive and it provides a good, practical introduction to biological experimental techniques. I would highly recommend the book as a reference for any physicist whose research touches on biology and will certainly keep the book handy for students working in my research group.

One of the pitfalls of trying to write a book about biophysics is that the field is extremely broad. This book touches on many of the experimental techniques used to study biological systems, although it is focused on techniques for measuring properties of microscopic biological systems. More macroscopic techniques, such as the imaging modalities used in medical physics are noticeably absent. Even some common techniques for studying microscopic systems, like optical tweezers, are missing.

The book is intended to be a textbook for use in an experimental biophysics course, although it's not clear what students would be targeted for such a course. The assumed background knowledge for the textbook suggests that it should be used in a graduate-level course, but the wide variety of experimental techniques presented here is not particularly suited for graduate students who are trying to become experts in a specific field. Additionally, none of the techniques is discussed at the depth typically needed for a graduate level course.

While some of the experimental techniques are described in detail, many techniques included in the book are presented with just enough information to leave you with an understanding of how the experimental technique works and what information the experiment will give you. In order to accomplish this, however, the book assumes that the reader has some familiarity with both physics and biology. While biology terms are defined in the glossary at the end of the book, there are a few parts of the main text that are heavily biological and a reader completely unfamiliar with biology would be constantly flipping to the back of the book. Some of the more advanced biology is explained in the text and I found the figures and illustrations to be quite helpful in clarifying some of the biology.

The features that I think make this book unique and useful are some of the “insider tips”, hints and recipes. There are detailed step-by-step instructions for carrying out some of the experiments, including information on how to obtain the chemicals or biological samples necessary for the experiments as well as tips for avoiding common pitfalls. The appendices

include recipes for gels, solutions and growth media used in biological and lists of fluorescent proteins, dyes and restriction enzymes along with their experimentally relevant properties. The end of each chapter lists books and journal articles for further reference, but also gives lists of online resources and software, both commercial and open source, that are used in analysis of the experimental data.

``Introduction to Experimental Biophysics" is a very useful reference book for physicists who do research, or have some interest in, biology. It provides an introduction to a wide variety of experimental biological techniques and provides practical information for setting up and performing the experiments.

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