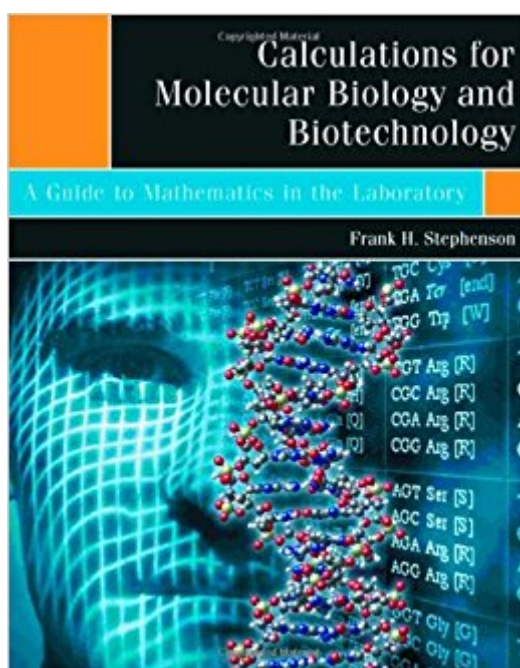


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# Calculations For Molecular Biology And Biotechnology: A Guide To Mathematics In The Laboratory



## Synopsis

Calculations in Molecular Biology and Biotechnology: A Guide to Mathematics in the Laboratory is the first comprehensive guide devoted exclusively to calculations encountered in the genetic engineering laboratory. Mathematics, as a vital component of the successful design and interpretation of basic research, is used daily in laboratory work. This guide, written for students, technicians, and scientists, provides example calculations for the most frequently confronted problems encountered in gene discovery and analysis. The text and sample calculations are written in an easy-to-follow format. It is the perfect laboratory companion for anyone working in DNA manipulation and analysis. \*A comprehensive guide to calculations for a wide variety of problems encountered in the basic research laboratory.\* Example calculations are worked through from start to finish in easy-to-follow steps\* Key chapters devoted to calculations encountered when working with bacteria, phage, PCR, radioisotopes, recombinant DNA, centrifugation, oligonucleotides, protein, and forensic science.\*Written for students and laboratory technicians but a useful reference for the more experienced researcher.\*A valuable teaching resource.

## Book Information

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## Customer Reviews

The first comprehensive guide devoted exclusively to calculations for the genetic engineering laboratory.

Frank Stephenson received his doctorate in molecular biology from UC Berkeley and has published

several books in the field including 'DNA: How the Biotech Revolution is Changing the Way We Fight Disease' and 'A Hands-On Introduction to Forensic Science: Cracking the Case'. He is currently an instructor in the Technical Training Department with ThermoFisher Scientific, the world's leading manufacturer of instrumentation and reagents for the biotechnology industry.

Outstanding book! I was a former cell molecular biologist by training, and I wished I had this book when I was working in the lab. This is a true calculation book for those who are doing research utilizing molecular biology as a tool. Every technician, graduate or undergraduate, postdoctorate fellows should own one of these.

I got myself this book by reading reviews. I should admit that it did have real good stuff for beginners although I did not find what I wanted. I was looking more of teaching how to do math when it comes to compound dilution from a stock concentration to a final concentration. Example, stock in mM to final of  $\mu\text{M}$  or  $\text{nM}$  in a well (96 well). I wanted to learn how to calculate the working concentration etc. How much volume to add and how to maintain the same concentration of DMSO till the end and stuffs like that. I wanted to learn some basics of qPCR calculation.

Very helpful w/making sure my chemical dilutions are accurate.

I was surprised by how many of the calculations covered in this book were ones which I either performed on a regular basis or would occasionally need but lacked proficiency in. Students and grad students will be very satisfied by the aid this book provides.

.For most of my entry-level biotechnology students, it's not the science, it's the math. Adults and students in my three-year biotechnology pathway (San Mateo Biotechnology Career Pathway) have weak, incomplete or dated math backgrounds. Dr. Stephenson's "Calculations for Molecular Biology and Biotechnology" quickly and clearly explains and demonstrates how to make the most common calculations done in biotechnology research and manufacturing. In a conversational way, that puts users of all levels at ease, the book does a particularly good job of presenting text in small, digestible amounts with practice problems and answers directly following. For my program, Chapter 1 (Scientific Notation and Metric Prefixes) and Chapter 2 (Solutions, Mixtures, and Media) are excellent reviews and remediation of calculations taught in the first semester's standard lab

training. Other chapters include several sections that are used or could be used as reference for my second and third year students. Some of these include bacterial growth curves and cell culture concentrations (Chapter 3), DNA Quantitation using spectrophotometers and gels (Chapter 5), PCR reactants concentration and preparation (Chapter 8), Protein Quantitation using spectrophotometry (Chapter 10), and Data Analysis (Chapter 12). One of the things I like best about the book is that there are so many topics presented that my students have proposed several new research ideas utilizing the techniques and calculations presented. I recommend this book as a reference for technicians, researchers, students, and teachers who work or are training to work in biotechnology labs or manufacturing facilities.

This book was really simplistic. For freshman, it is ok, for the practice.

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